NORMAN A. JOHNSON
Editor

CHARLES A. WHITEHEAD
Managing Editor

MYRON D. REESER
Business Manager

HERBERT A. STAUDERMAN
Advertising Manager

WILLIAM J. O'CONNOR
Production Manager

BERYL A. LAKNER
Circulation Manager

OFFICIAL PUBLICATION OF THE PROCEEDINGS, AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

American Dyestuff Reporter was founded in 1917 and the Textile Colorist and Converter (formerly Textile Colorist) was incorporated with it in January, 1949. Published every other Monday, by the **HOWES PUBLISHING COMPANY, INC.**, 44 East 23rd Street, New York 10, N. Y. **C. R. Howes**, President; **Ernest J. Finan**, Executive Vice-President; **Norman A. Johnson**, Vice-President & Treasurer; **Myron D. Reeser**, Vice-President; **Clara Patrick**, Secretary.

Telephone SPring 7-9364

AMERICAN DYESTUFF REPORTER

DEVOTED TO TEXTILE WET-PROCESSING

Annual Processing Review Number

contents

VOLUME 48 December 14, 1959 NUMBER 25

special articles

Alphabetical List of new Products Developed Since November, 1958 67

Highlights of the Past Year 97
P J Wood

Milan International Textile Machinery Exhibition 121
Leonard H Platnick

aatcc proceedings

Pile Fabrics 103
Northern New England Section

Progress in "Wash-and-Wear" Wool 114
John F Krasny and John Menkart

AATCC Calendar 117

Membership Applications 118

departments

Abstracts 125

Book Review 134

News of the Trade 137

New Products, Developments, Processes 138

General Calendar 145

Names in the News 146

Technical Literature 149

Copyright, 1959, Howes Publishing Co, Inc
Contents of previous issues can be found by consulting the Service and Technology Index and the Engineering Index, Inc, at your library

TO GET FASTER FABRICS IN JET PLANES... F. SCHUMACHER SAW SANDOZ

After F. Schumacher & Co. had obtained an upholstery contract for the new Boeing 707 jet air-liners, the fastness specifications* were raised to a point far beyond what anyone had ever asked of direct-dyed fabrics.

When final requirements were submitted to SANDOZ color technicians, new shade formulas—based on *Lumicrease*® dyes—were developed. SANDOZ helped Schumacher meet the seemingly impossible specifications!

These SANDOZ Lumicrease formulas, in dyehouse production under Schumacher supervision, resulted in tested and approved upholstery fabrics. One of the first to use them is Continental Air Lines, whose design firm, Charles Butler Associates of New York and London, selected Schumacher Gold, Coral, and Turquoise shades for seat upholstery in Continental's Golden Jet Service. If you ride the Continental jets between Chicago, Denver, Kansas City and Los Angeles, you'll see the fastest direct colors anywhere in the world.

Now, how can SANDOZ color technicians help you?

* 140 hour fastness to light without appreciable fading; fastness to crocking, to dry cleaning, and to perspiration.

(Just call or write:) SANDOZ, INC., 61-63 Van Dam Street, New York 13, New York ALgonquin 5-1700.

District Offices: Charlotte, Cincinnati, Fair Lawn, N. J., Hudson, Mass., Los Angeles, Philadelphia.

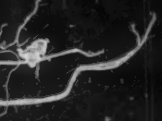
SANDOZ

THINKS AHEAD WITH TEXTILES

SANDOZ

DOZ

, 1959



Annual Processing Review Number

AMERICAN

DYESTUFF REPORTER

Volume 48 December 14, 1959 No. 25

Alphabetical List of NEW PRODUCTS

Developed Since November, 1958

Chemicals ..... Page 67
Coloring Materials ..... Page 83
Equipment ..... Page 93

WITH the cooperation of manufacturers of dyestuffs, textile chemicals, and wet processing and laboratory equipment, we have prepared the accompanying list of products which, it is understood, have been placed on the market or further developed since November, 1958. The list of products has been subdivided according to the classifications mentioned and in the indivdual products are listed for each company. Suppliers are listed in alphabetical order.

We have tried to make this list as complete and accurate as possible, but there may be some unintentional omissions or errors. If so, we shall be pleased to have such matters brought to our attention immediately. We have depended upon the manufacturers to supply us with a complete list of their new products together with information concerning them. The properties claimed for these products are those claimed by the manufacturers. The information which we publish is necessarily in a brief form inasmuch as lack of space prohibits the publication of complete details concerning any product. We hope, however, that the information as it appears is sufficiently comprehensive to give the reader a specific idea of the properties and intended uses of the product.

TEXTILE CHEMICALS

ALUMINUM COMPANY OF AMERICA
CHEMICALS DIVISION
1501 Alcoa Bldg
Pittsburgh 19, Pa

Hydrated Alumina C-35
A new low-soda alumina trihydrate now available in commercial quantities. It is a fine, white, crystalline alumina with the chemical formula $Al_2O_3 \cdot 3\ H_2O$ or $Al(OH)_3$. The outstanding property of C-35 is a new typical soda content of .040% Na_2O. It is snow white, organic free and has high reactivity and a negligible insoluble content. This hydrate is applicable in uses which require an extremely low-soda alumina.

* * *

AMALGAMATED CHEMICAL CORP
Rorer and Ontario Sts
Philadelphia 34, Pa

Dynesol T-70
An alkanolamine-neutralized alkylaryl sulfonate containing a high percentage of solids. May be used as a wetting and scouring agent as well as pasting agent medium for acetate colors. Effective against sublimizing.

Nionine TL-70
An alkanolamine-neutralized wetting and scouring agent, having a "built-in" softener. Recommended by the manufacturers for the scouring and softening of sweaters and yarns. It is said to yield clear, clean fabrics with soft, full hand.

Accoflex
A series of copolymers: vinyl acetate—acrylate and vinyl acetate—fumarate. These copolymers are said to have excellent flexibility, good water resistance and high film clarity. They may be used as hosiery finishes, piece goods finishes, and adhesive bases.

* * *

AMERICAN ALCOLAC CORPORATION
3440 Fairfield Road
Baltimore 26, Maryland

Sipenes
A varied group of tertiary amines having use as coupling agents in the manufacture of azo dyes.

Sipex EA
An anionic detergent for woolen and synthetic fabrics. Also used in neutral and acid textile scouring. Stable through pH range of 3-7.

Sipex TDS
A good anionic wetting agent for textile applications requiring poor rewetting properties. Particularly useful where fabrics are to be treated with water repellents.

Siponic CD
A nonionic surface-active agent said to have excellent wetting and detergent properties. Produces moderate foam and has good rewetting . characteristics Compatible with soap, anionic, and cationic detergents. Surface activity is maintained in the presence of mineral acids, alkalis or metallic salts. It is said to be an efficient wool scouring agent, giving low temperature degreasing action.

Siponic Y150
Nonionic surfactant. Used for acid degreasing of wool and as a dye leveling agent. Soluble in water at all proportions up to 140 degrees F, in alcohols, ketones, most chlorinated solvents and most aromatic hydrocarbons. Stable to heat, strong alkalis and metal salts. Not stable to oxidizing agents.

Siponic Y500
A nonionic surfactant having same general textile uses as Siponic Y150, ie, is an acid degreasing agent for wool and is a dyeing assistan for wool-synthetic blends, but being significantly more hydrophilic. Soluble in all proportions in hot water, also soluble in acetone, aromatic hydrocarbons, carbon tetrachloride, ethanol, ethylene glycol, toluene, and xylene. It is said to be stable to strong acids, alkalis, and metal ions.

Siposan HCF
A cationic agent and hand modifier. Imparts antistatic and water-repellent properties to treated fibers. Dispersible in hot water, ethanol, isopropanol, propylene glycol and similar solvents.

* * *

AMERICAN CYANAMID COMPANY
DYES DEPARTMENT
Bound Brook, NJ

Cyquest 40* Sequestering Agent

A sequestering agent for preventing difficulties caused by metal ions in scouring, bleaching, dyeing and finishing processes.

* * *

AMERICAN CYANAMID COMPANY
TEXTILE CHEMICALS DEPT
Bound Brook, NJ

Aerotex† Antistatic CSN

A cationic organic material which is said to provide excellent antistatic effectiveness on Creslan*, Dacron, Orlon, nylon and other textile fabrics which tend to build up static charges. The product is said to be especially effective at low relative humidities. The product imparts negligible color to fabrics and has a minimum tendency to discolor under high-temperature drying or storage conditions. The product is applied by padding and drying. No further treatment is necessary. The product is not durable to extended washes.

Cyanalube* Softener TSI Special

A nonionic polyethylene emulsion said to have exceptional compatibility with resin catalysts. This product is further said to impart excellent durable lubricating and softening characteristics to cotton and rayon fabrics treated with thermosetting resins. Improvements in tear strength, abrasion resistance and solubility are also imparted by the use of this product in resin finishes. When applied alone, Cyanalube Softener TSI Special will provide a durable soft finish on either hydrophilic or hydrophobic fabrics.

Cyanatex* Softener 3143

A nonionic softener which, it is stated, may be used in many phases of textile finishing to obtain fabrics with full body together with a pleasing handle and draping qualities. It is recommended as a pure finish on cottons, synthetics, as a plasticizer for starch and thermoplastic finishes, as a hand modifier in resin application and as a sewing lubricant for resin-treated or other goods with poor sewing characteristics.

Juvenon* Soil Retardant No. 6

This product is said to be an effective retardant on all fibers customarily used in pile rugs. It reduces the rate of soiling of rugs and carpets, thus reducing the frequency of cleaning. This product is especially effective in maintaining the original color of the fabric. The hand of the fabric after treatment is essentially unchanged.

Pyroset* Fire Retardant N-10

Produces a durable fire-retardant finish on nylon fabrics together with a desirable firm hand. On nylon Raschel nettings especially, the resilient finish obtained from a proper application of this resin is said to be free from undesirable side effects such as flaking and dusting of the finish from mechanical action. There is a minimum change in shade on application, especially desirable on whites. It is claimed that nylon fabrics treated as recommended will meet the reqirements of the Federal Flammable Fabrics Act.

†Trademark
*Registered trademark

ANTARA CHEMICALS
A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION
435 Hudson Street, New York 14, NY

Alipal* GB-520
Alipal MC-470

Modified alkyl phosphate esters, which are of interest as lubricants and antistatic agents for filament yarns and as constituents of wool oils.

Alipal* LO-529

A sodium salt of a complex organic phosphate ester. It is used as an assistant in the boiling off of cotton.

Blandofen* AC

A polyvinyl methyl ether dispersion that is readily dispersible in water. It is used with Blandofen SL to improve the crockfastness of naphthol-, sulfur-, and pigment-dyed or printed fabrics.

Blandofen* SL

A nonionic polyethylene emulsion that is dispersible in water. It is used in resin or starch finishes for textiles to improve sewability, hand and drape, tear strength, abrasion resistance, and crockfastness.

Diazopon* SS-837

A nonionic, high-molecular-weight condensation product that is readily soluble in cold water and stable to acids, alkalis, and metallic ions. It is used as a stabilizer for naphthol dyebaths, soaping agent for naphthol dyeings, leveling assistant for neutral-premetallized and milling dyes, dyeing assistant for vat-ester and disperse-color dyeing and also in the dyeing of nylon.

PVP/VA W-464

A 40% aqueous emulsion of a copolymer, the monomer ratio of which is 45% vinylpyrrolidone/55% vinyl acetate. This product is soluble in methanol, ethanol, acetone, and ethyl acetate. It is used in textile and glass-fiber-roving sizes, and as a binding agent for nonwoven fabrics.

* * *

APEX CHEMICAL CO, INC
200 S First St
Elizabethport 1, NJ

Bondapex #50

Hand builder for curing resins; textile size and finish. *Chemical nature:* Modified starch ether.

Dysyn #271

A carrier for dyeing Kodel. *Chemical Nature:* Self-emulsifiable organic liquid.

Dysyn #281

Carrier for dyeing spun and filament Dacron and Dacron blends. *Chemical Nature:* Self-emsulsifiable blend of modified phenols.

* * *

ARKANSAS COMPANY, INC
PO Box 210
Newark 1, NJ

Algepon* #230

A highly efficient retarding agent for dyeing 100% Orlon, using cationic dyes. This product is said to produce exceptionally uniform and level dyeings due to its continuous retarding effect throughout the dyeing cycle. It is particularly applicable for dyeing light and pastel shades. For optimum results, it is recommended by the manufacturers that a prescouring operation with a nonionic detergent such as Dergon O M followed by suitable rinsing, be carried out before the dyeing process. Algepon #230 is a liquid cationic product which is readily soluble in water, and is acid in reaction (pH 5.0 to 5.5).

Arkolube* #57

A lubricating softener combining the desirable properties of polyethylene and silicone. It may be used effectively in combination with thermosetting resins of all types for application to cotton fabrics, for the purpose of improving tear strength, abrasion resistance and sewability. It also may be used alone as a finish to impart softening and lubricating properties to many types of fabrics. Arkolube #57 is compatible with most thermosetting resins and does not interfere with their primary functions of dimensional control, crush resistance, etc. In physical appearance, Arkolube #57 is a white emulsion which is nonionic in nature and slightly alkaline in reaction (pH 8.0-8.5).

Arko Stat-ex* W

A highly efficient antistatic agent for eliminating or minimizing the accumulation of static charges on fabrics containing synthetic fibers such as Acrilan, Orlon, Dacron and nylon. An outstanding property of this product is its consistant efficiency over a wide pH range (4.0-10.0)—acid, neutral and alkaline. The product is alkaline as sold (pH 8.8-9.0), and may be adjusted with acetic acid to the neutral and acid ranges as required. Arko Stat-Ex W is said to be durable to drycleaning without appreciable loss of efficiency. Where laundering is necessary on garments treated with Arko Stat-Ex W, a renewal treatment in the last rinse of the laundry cycle may be carried out to maintain the antistatic properties. It is stated that wearing apparel which has been treated with Arko Stat-Ex W, has been proven to be free from toxic and irritating effects when in contact with the human skin. In physical consistency Arko Stat-Ex W is a soft amber paste which is readily soluble in hot water with stirring. It is essentially nonionic in nature but can be rendered cationic by addition of acetic acid to a pH of 4.0-5.0.

Dergopal* U N

An all-purpose brightener for general use in laundering procedures. It is effective on cotton rayon, acetate, wool and silk, and produces brilliant whites on all these fibers. It is not recommended for synthetic fibers such as Dacron, Acrilan and Orlon, etc. It may be used directly in chlorine bleach as ordinarily employed in home and commercial laundering, without loss of brightening efficiency. Dergopal U N is an opalescent liquid which is easy to handle and economical to use in all laundering procedures. It is nonionic in nature and alkaline in reaction (pH 9.0-9.5). This product is also available in triple strength under the designation of Dergopal U N XXX.

Resipon* N D C

A new type of cyclic formaldehyde thermosetting resin for "wash-and-wear" cottons. The outstanding feature of this resin is said to be that it does not pro-

*Registered trademark

duce damaging chlorine retention or loss of tensile strength after multiple launderings. Furthermore, it does not cause yellowing even at elevated ironing temperatures. Resipon N D C is said to be highly durable to all types of laundering, and excellent crease resistance is maintained after 20 commercial launderings. It also is said to provide satisfactory dimensional control and give excellent appearance ratings after multiple launderings. In physical appearance, this new resin is a practically water-white, free-flowing liquid which permits easy pumping of gravity feed. It is soluble in water at all proportions, and neutral in reaction(pH 6.5-7.0). Catalyst D A is recommended by the manufacturers for use with Resipon N D C, and it is claimed that it has been found to be superior to other commonly used catalysts.

* * *

ARNOLD, HOFFMAN & CO INC
55 Canal Street
Providence, RI

Ahco* 838
A yellow paste which is used as a lubricant in the processing of glass fibers.

Ahco* Thickener AB
Print paste thickener for producing illuminated fiber-reactive Procion dyestuff resists under aniline black, thus replacing the need for magnesium oxide. In this application, it is said to give better covering power than the more common high-viscosity, low-solids, conventional thickeners used in resist styles.

Ahcopel* WN
Durable, thermosetting water repellent and softener for cellulosic fibers and their blends where the cellulosic component predominates. A pourable paste, it may be readily diluted with water to produce stable dispersions. Can be used in conjunction with urea-formaldehyde resins in the finishing of viscose-acetate suiting.

* * *

BURKART-SCHIER CHEMICAL COMPANY
Chattanooga, Tenn

Aromol 95
Highly active aryl sulfonate-amine salt. Clear stable liquid. Used as emulsifier, wetting agent, detergent and dispersant. It is claimed to be the most economical form of this type of surfactant.

Fire Retardant RCX
A later, improved fire retardant of the soluble salt (renewable) type. It is claimed to have superior resistance to high-temperature drying, curing or heat aging. It is further said to impart excellent flame resistance as well as freedom from afterglow. Readily soluble—easily and economically applied. Minimum effect on hand and shade.

Hy-Pel 90
Latest addition to the Hy-Pel series of water repellents. While imparting the degree of water repellency characteristic of the Hy-Pel products, in addition Hy-Pel 90 does not ring when spotted with organic solvents. Well suited for upholstery as well as general automotive fabrics.

*Registered trademark

Polybond C-128
A backing compound specifically formulated for the stabilization of knit fabrics. Controls both stretch and shrinkage. Effect on hand controlled to impart finish desired. Minimal curing requirements.

* * *

CARBIC-HOECHST CORPORATION
451 Washington St
New York 13, NY

Carbowhite FCA
Optical bleaching agent for acrylic, polyester and acetate fibers.

Emigen P
Prevents migration of dyes.

Hostapal AS
Improves crocking of naphthol dyeings.

Imine IP
(Also known as APO.) Permanent anticrease and flameproofing agent. Does not absorb chlorine.

* * *

CHEMICAL PRODUCTS CORPORATION
Jackson Lane
West Paterson, NJ

Anti Fume H
A gas-fading inhibitor which produces a stable emulsion at all dyeing temperatures. As it exhausts evenly and uniformly with dyestuff, it is said to produce a uniform and level gas fading protection. Chem Anti Fume H is said to impart on acetate and rayon fabrics an unusually high resistance to yellowing or staining and is unaffected by normal perspiration. It is stated that its inhibiting efficiency withstands repeated laundering and drycleaning.

Chem DBG
A durable bactericide, germicide and sanitizer for longlasting control of bacteria, germs and diseases. It is safe, nontoxic and is said to impart a high degree of permanency and fastness to high-temperature scouring and repeated laundering. It is claimed that DBG-treated cloth showed, after five or more washings and launderings at 135°F excellent and complete bacteriostatic properties. Tests and certifications were performed by independent bacteriological laboratories.

Chem ND
A nylon detergent with solvent and emulsifier action which removes graphite, grease, wax and soil stains, from nylon and other synthetic fibers. Its selective solution effect on the surface of nylon and other fibers, as well as its fast penetrating and wetting action is said to enhance its efficacy as a scouring agent at both cold and boiling temperatures. Chem ND is nonfoaming, compatible with bleaching and desizing agents and effective in hard water.

Chem Duller CD
A light shade duller, cationic in nature and nonfoaming. It is compatible with neutral and acidic materials over a range of pH 3 to 7, such as urea and melamine resins, vinyl, acrylic resins and weighters. Contains resins to bind, and only the purest titanium; contains no lead, zinc, calcium, magnesium, silicon pigments, nor clays, nor bentonite. Imparts a smooth, full, drapehand. It is said to be particularly effective on nylon and synthetic fibers.

Chem Duller N
A nonionic, light duller, nonfoaming, compatible with nearly all anionic and cationic finishing agents, resins and gums. It is stable over a wide range of pH, 3 to 11. It contains resin and only the pure titanium pigments with no zinc or calcium pigments nor clays. It is said to impart a smooth full hand without powdering out.

Chem Dyefin
It is said to have high affinity for dyestuffs, improving the binding of color and dyestuff to the textile fibers. It prevents crocking and bleeding. It disperses the pigments and colors homogeneously and thereby produces uniform level dyeing. It is a heterocyclic amine resin.

Chemeloid
A clear protein stiffener, sizer and binder used for finishing and sizing acetate or rayon satins, taffeta. It is said to impart a weight, firm, lively and lustrous hand with minimum mark-off.

Chem Scour D
100% active blend of selected solvents with dynamic detergents and penetrants. The selective solution effect bites into the textile surface. The fast penetration, powerful detergent and emulsifier effectively loosen, clean and scour out and remove resin binders, gums, pigments, oils, greases and stains from print blankets, wools, cottons, furs, rugs, upholstery and synthetic fibers. An all-purpose heavy-duty degreaser and scourer, which is said to be effective, fast and thorough at high and low temperature.

Chem Softener C
A cationic softener which is said to impart durable softness and resist discoloration of whites at high temperature. It has been specifically developed for use with urea- and melamine-formaldehyde resins, as a plasticizer and softener without imparing the crease resistance or stabilization. It is compatible with dilute solutions, acids, alkalis and electrolytes and is compatible with nonionic and cationic finishing agents.

Chemsol N
An efficient, nonionic, nonlathering detergent, said to possess fast wetting and high penetrating action for nylons, cotton, synthetics, fibers and yarns. It is said to be exceptionally resistant to and effective in acid, alkali and salt solutions and hard water.

Chemsol N-52
Low foaming, rapid wetting, high penetrating action of nonionic detergent for package beam yarn dyeing equipment is claimed. Effective and rapid penetration in pigmenting vat colors or direct developed colors. It is said to eliminate cross overs in beam dyeing, especially on plied yarns and mercerized knitting yarns. Very economical on raw stock dyeing. It leaves the fibers soft and clean. It is further said to possess high resistance to acid, alkali and salt solutions.

Color Fix
Color Fix is a resinous, cationic agent. It is said to improve colorfastness to water, perspiration, washing and to steam pressing. It improves fastness of direct dyeings on cotton, rayon and cellulose fibers, knitted or woven fabrics. It is

further said to retard bleeding and crocking of colors. It is effective and stable under high salt concentrations and at temperatures as high as 160°F. It may be used with urea- or melamine-formaldehyde resins in the same bath. With copper and metallic salts it increases dyefastness to washing.

Polyethylene Emulsion PE-50

A stable translucent light emulsion, compatible with nonionic and electrolytic solutions. It is said to provide a soft, full drape hand with increased abrasion resistance and tear strength. It is used for lubricating, softening, and as an antistatic agent on synthetic or natural fibers.

Repellent 95A

A nonionic water repellent which is comprised principally of a high-active-solid, water-resistant, nonhydroscopic wax. Its fine emulsion is said to be stable to acid, alkali, high salt concentration and exceptionally resistant to hard water over 2,000 ppm. It is compatible with aluminum acetates, formates or respective zirconium salt. It is said to impart a soft, full, smooth hand with high stain and water resistance.

Repellent Z

A water repellent of the zirconium type which is said to provide a durable and lasting water repellency and is applicable to cotton, rayon. acetate, nylon, Orlon and blends. Repellent Z is said to produce a fine stable homogenous emulsion and therefore to retard spotting of goods build-up of wax on rolls and bleeding of color. It yields a soft round mellow hand in addition to a high water repellency. It is stated that the treated fabric will be stain and spot resistant and will breathe easily as the pores of the fabric are open.

Resin 61-0**

A ribbon finish and sizing consisting of a noncuring, water-white resin concentrate. It is said to provide a full-bodied, firm, lustrous finish for satins, taffetas, acetates, rayons and nylons in uses for blanket binding and linings. Does not discolor and remains odorless. Its finish possesses high gloss and minimum mark-off. It may be used with water repellent in one operation.

Resin 100

A thermosetting durable resin (urea-formaldehyde syrup) which is said to provide a medium firm, lively and excellent crushproof, shrinkage-control finish on rayons, cottons, acetate or blends.

Resin 909

An alkyd clear resin which is said to impart a medium firm, full body and round drape finish. It is noncuring and leaves no mark-off. Its finish on satin acetates and rayon fabric is lustrous.

Resin E

A cyclic urea-formaldehyde which is a thermosetting and fiber-reacting resin. It is fast curing and said to possess outstanding durability to laundering and drycleaning. It withstands effects of chlorine bleach after washing. Resin E is compatible with nearly all resins, water repellents, softeners and finishes. It is said to prevent formaldehyde odors in treated goods. It produces a durable resiliency and fullness without boardiness. It is claimed that it porvides the basic resin for all "wash & wear" finishes. It is used for fabric embossing, residual pleating and glazing.

Resin Gum

A resinous binder which reacts chemically with formaldehyde resins, producing a durable, full-bodied, resilient finish said to possess improved tensile strength. It is compatible with almost all finishes, softeners, repellents, oils and resins. It is stated that it imparts a crisp, full-bodied, firm, lively and resilient finish which will withstand dry cleaning and considerable handling with no mark off.

Resin NF

A nylon finish. A thermosetting durable resin (alkylated urea-formaldehyde) which is said to provide stabilization firmness and resilient crease resistance on synthetic and natural fibers. It is stated that, particularly on nylon, silks, Dacrons, marquisettes, sheers, taffetas, it yields a parchment papery effect. It produces a durable clear embossing and glazing finish on cottons, acetate and rayon blends which is resistant to washing and drycleaning.

Resin YT**

A ribbon finisher and stiffener which is said to provide a dry, lustrous, firm, papery, parchment effect, without mark-off. It is specifically designed for ribbon, satin, acetate, and rayon finishes. It may be used with water repellent in one operation. It is stated that it is established and proven as nonhydroscopic. The ribbon finish cuts cleanly with least fraying and slippage.

Softener RC

A liquid penetrating nonionic plasticizing softener, designed specifically for rapid wetting, penetrating and softening fibers and yarns in the skein, package or cone. It thoroughly penetrates the fibers of cotton or synthetic fibers. Upon drying it is said to leave no hard opaque fatty residue, but a soft smooth, silky feel. It does not yellow on whites nor discolor shades. It is universally applicable because of its unusual compatibility with alkali, salt, electrolytes and hard water.

Velveteen ST

A nonionic cream softener which is said to impart a smooth, velvety silk finish with limpness. It is claimed that is possesses exceptionally high resistance to yellowing or discoloration caused by heat or aging. It is compatible with nearly all anionic and cationic finishes, as well as salts, weighters, resins and repellents.

* * *

CIBA COMPANY, INC
CHEMICAL SPECIALTIES DIVISION
Fair Lawn, NJ

Univadine*W

A leveling agent for wool with acid dyes. It is stated that levelness is obtained in acetic acid or, under certain conditions, in sulfuric acid with products heretofore only applicable in baths containing ammonium salts.

**Patent pending
*Registered trademark

THE CLARKSON LABORATORIES, INC
920-30 North Darien Street
Philadephia 23, Penna

Clarco Softener A

Anionic softener for use on cotton and synthetics.

Clarco Softener C

Cationic softener for use on cotton and synthetics. Compatible with starches, dextrines, gums, weighter, resins, etc. Also compatible over a wide pH range, alkaline or acid. Nonyellowing and minimum effect on lightfastness of colors.

Clarco Softener N

Nonionic softener for use on cotton and synthetics. Good durability, nonyellowing. Compatible with most finishing agents. Readily soluble. Imparts a full velvety hand.

Clarcolene AY

Dyeing, bleaching, detergent assistant, carbonizing dispersing, emulsifying, fulling and kier boiling agent, and wetting agent.

Defoamer D

Emulsion of silicone and nonionic defoamers usable in cutting foaming for general textile applications.

Flame Retardant H

Inorganic, renewable treatment for cotton and viscose rayon, wool and synthetics (powder).

Flame Retardant #100

Inorganic, renewable treatment for cotton and viscose rayon, wool and synthetics (liquid).

* * *

CONTINENTAL CHEMICAL CO
195 - 21st Avenue
Paterson 3, NJ

Concoflor White 900

A highly concentrated powdered optical brightening agent, soluble in solvents and inorganic acids, primarily designed for use by large consumers or compounders of finished products. May be used on wool, nylon, acetate, Orlon, Arnel, and Acrilan. Application in minute quantities.

Concoflor White 400

An optical whitening agent in powder form designed primarily for use on cotton and rayon with little effect on nylon and acetate.

Concoflor White 200

An optical brightening agent said to possess excellent water solubility for use on all-cellulosic fibers, such as cotton and rayon. Good compatibility with normal finishes, such as resins, starches, etc.

Conco Softener OC

A new cationic nonyellowing softener specifically designed to yield a very soft, full round hand on Ban-Lon, Orlon, nylon, other synthetics and cotton. It is said to be good for knitted wear. Product may be applied by exhaustion or conventional padding methods.

Conco Emulsifier K

A new highly concentrated emulsifying agent particularly effective in solvent scouring operations in Burlington or conventional equipment. Product forms a

stable solution with up to 95 parts of Varsol, toluol, naphtha or xylol. The resulting water emulsion is very stable even in low percentages. It is claimed to be an excellent product for economical operation where the mill supplies its own solvent. Also particularly useful in detergent compounding operations.

Conco Dacrosist GR

A new carrier and dye assistant for Dacron and Arnel which is said to give thorough, level and deep dyeings and freely permit dyestuff addition. May be applied in box, jig or conventional equipment.

* * *

CREST CHEMICAL CORPORATION
225-235 Emmet St
Newark, NJ

Catacrest 100

A 100%-active liquid cationic substantive softener. This product contains no solvents or diluents, disperses readily in cold water, giving low foaming solutions, and imparts a soft hand to cotton, rayon, acetate and synthetics. It reportedly may be used with urea-formaldehyde, melamine and cyclic resins to obtain a durably soft, lofty hand with maximum draping qualities. It is stated that this softener is applied to whites with no yellowing and shows excellent scorch resistance. It is said to have no effect on shade of pastel-dyed goods, to preserve maximum lightfastness, and to show no chlorine retention.

Crestex Antistat B

A nondurable antistat reportedly showing high efficiency. Small amounts are said to provide excellent resistance to static electrical build up on synthetic fabrics. It is stated that Crestex Antistat B is used to protect against the accumulation of troublesome static charges in processing synthetics where resins provide conditions for charge buildup.

Crestofine A

An anionic softener said to have excellent softening and lubricating properties for cotton, rayon, and synthetics. It reportedly exhibits very good scorch resistance and is recommended by the manufacturers for fabrics which are subjected to high temperatures. Crestofine A is a smooth white paste which is said to be readily dispersible in water and to be compatible with nonionic and anionic finishes.

Crestofine N

A nonionic softener which is said to exhibit excellent softening properties when used with urea-formaldehyde or melamine resins. It reportedly is nonyellowing on whites and does not cause any shade changes with dyed fabrics. Crestofine N is readily dispersible in cold water and is used primarily on cotton, rayon and acetate.

Crestogen

An agent designed to eliminate the barré effect when acid dyes are applied to nylon. Crestogen is said to retard the acid dyeing of nylon, enabling the dyer to obtain level dyeing results even on filament nylon. This product is substantive to nylon under the conditions of use. Crestogen is an amber-colored oil, said to be completely soluble in water and compatible with anionic and nonionic agents.

Crestopon

A new surfactant described chemically as the sodium salt of a fatty acid-polypeptide condensate. This product is claimed to combine the protective colloidal and dispersing powers inherent in high-molecular-weight polypeptides with the unexcelled detergency of soap. Crestopon reportedly gives a softer fabric and reduced injury to delicate fibers as evidenced by higher tear and tensile strength.

Crestopon is recommended by the manufacturers for improved kier-boiling, more efficient bleaching and optimum cleaning action on all fabrics at all temperatures. This detergent is said to be stable to strong alkalis, is free rinsing and exceptionally economical to use.

Crestoset M

A thermosetting resin of the modified urea-formaldehyde type, which is said to give a soft hand to fabrics. It reportedly is used to impart durable stabilization, maximum resilience with minimum loss of tensile strength and excellent embossed and glazed qualities to cellulosic and synthetic fabrics. Crestoset M is said to be compatible with all types of softening and finishing agents, to be readily soluble in water, and to show unlimited storage life.

Crestoset MFL

A thermosetting resin of the modified urea-formaldehyde type which is said to contain an unusually low free-formaldehyde content. This resin reportedly is used to impart durable stabilization, maximum resilience with minimum loss of tensile strength, and excellent embossed and glazed qualities to cellulosic and synthetic fabrics. The low free-formaldehyde content is said to make Crestoset MLF unusually suitable for use in mills where the ventilation is inadequate or where formaldehyde odor is an objectionable problem.

Dacrest Carrier W

A new, nontoxic carrier for dyeing of Dacron and Dacron blends. It reportedly provides level, economical dyeings, clear bright colors, rapid dyeings, maximum lightfastness, maximum color yield, one-step application and no adverse effects on acetate rayon. Dacrest Carrier W is available as a clear liquid which, unlike many nontoxic carriers, is said to be readily dispersible in cold water, yielding stable emulsions. The ease of use, the nontoxicity and the extremely high color yields are salient features of this carrier, it is claimed.

* * *

CROWN CHEMICAL CORPORATION
240 India Street
Providence 3, RI

C-Tron*

A thermosetting resin precondensate containing less than 2.5% unreacted formaldehyde. For use on cotton or rayon fabrics to impart crease resistance, dimensional stability and "wash-wear" characteristics. Clear water-white liquid.

C-Tron* 100

A cyclic resin precondensate exhibiting exceptionally low chlorine retention. For use on cotton or rayon fabrics which may be subjected to hypochlorite bleaching. It is said to impart a high degree of crease resistance and excellent dimensional stability and to be resistant to acid and alkaline hydrolysis. Clear, pale yellow liquid.

Estrafix NF 2

Cationic dye fixative. For use on dyed fabrics to improve bleeding, perspiration and washfastness properties. May be applied by exhaustion or padding. Clear, water-white liquid.

Estranol BS

A surface-active alkyl sulfate ester which is said to possess exceptionally good rewetting properties. Also imparts softness and draping qualities when applied to cotton and rayon fabrics. Fill not oxidize or discolor on the fabric. Clear, yellow liquid.

Estrasol BW

An alkylaryl solvent detergent for washing print blankets and for effective removal of tars, waxes and oils from all types of fabrics. Clear, light yellow liquid.

* * *

DE PAUL CHEMICAL CO
44-27 Purvis St
Long Island City 1, NY

Acetate Weighter

A solution of organic and inorganic salts, humectants and resins, designed to add weight to acetate tricots. It is nonyellowing, will not affect the hand and is compatible with delusterants and softeners. The weighter is best applied from a padder.

Depco* Carrier

Dyeing assistants. Self-emulsifying organic swelling agents for the dyeing of synthetic fibers.

Depco* Carrier AC

Nontoxic ester type carrier used for Arnel and its blends. It will not cause fiber dulling or spotting. Lightfastness of the dyes is unaffected.

Depco* Carrier DA

Self-emulsifiable solvent carrier, nonflammable, used in the dyeing of Dacron and its blends.

Depco* Carrier P

Dispersible, paste-type phenolic carrier of extremely fine particle size. Used in dyeing of Dacron, Dynel, Arnel, Darlan and Verel. Depco Carrier P efficiency is based on its fine particle size.

Depcopon* NIA

Anionic detergent characterized by its effective detergency and complete rinsability. It is used for synthetic fibers and also in kier boiling of cotton.

Depco* Scour #12

A balanced solvent scour detergent designed especially to remove soil, graphite stains and grease from synthetic knit goods. It is used in the one-bath scour-dyeing method applied to Ban-Lon.

Depco* Scour MI

A balanced solvent scour designed for use in the Burlington dye unit, as well as conventional dyeing equipment. Self emulsifiable, Depco Scour MI will remove most grease and sizes from goods even after heat setting.

Nylon Weighter S

A solution of organic and inorganic salts and hydroscopic agents, which will add weight to nylon tricot. Nonyellowing, Nylon Weighter S is compatible with delustrants and softeners and is applied from the pad.

Synthetic Weighter

A high-solids modified polysaccaride designed to give weight and hand for silk and rayon. Is compatible with water repellents and can be used in a one-bath pad process.

* * *

DIAMOND ALKALI COMPANY
300 Union Commerce Bldg
Cleveland 14, O

40% Basic Chromic Chloride

$Cr_6(OH)_{12}Cl_6 \cdot 12H_2O$

Soluble in water and many organic solvents, 40% basic chromic chloride is offered in large pilot-plant quantities. It is suggested for use as a mordant in dyeing and printing textiles, intermediate for manufacture of chromium compounds, and in the solvent tanning of leather.

*Registered trademark

*Registered trademark

Anhydrous Chromic Chloride
$CrCl_3$

Anhydrous chromic chloride is insoluble in water and organic solvent. It is soluble, however, in the presence of reducing agents. Suggested applications are mordant, catalyst, tanning agent, flame metalizing, vapor plating, intermediate for organic chromium compounds, high-purity chromium metal, and impregnant for textiles and plastics.

* * *

E I DU PONT DE NEMOURS & CO, INC
ELECTROCHEMICALS DEPARTMENT
Wilmington 98, Delaware

Oxone* Monopersulfate Compound

A white, granular solid which is stable and remains free-flowing and noncaking when stored under normal conditions. It is readily soluble in water, giving an acidic active oxygen solution. Active oxgyen content 4.5% minimum. Strong oxidizing agent. Uses: For manufacture of dry laundry bleaches, detergent-bleach washing compounds, scouring powders, plastic dishware cleaners; general oxidizing reactions.

Methanol Formaldehyde 33-55

A clear, water-white solution of formaldehyde in methanol containing, by weight, 55% formaldehyde, 33% methanol, and 12% water. *Uses:* For manufacture of methylated urea and methylated melamine resins for textile treating (to impart wrinkle resistance, water and stain repellency, and shrink resistance).

Paraformaldehyde 96%

A new, higher-assay paraformaldehyde of closely controlled purity and screen analysis. The premium-quality, low-cost paraformaldehyde is available in three grades: granular, powder, and super ground. *Uses:* For manufacture of resins for textile treating.

Urea Formaldehyde 26-59

A clear, water-white, stable urea-formaldehyde solution containing approximately 4.5 moles of formaldehyde and 1.9 moles of water per mole of urea. It is a mixture of methylolureas in the presence of free formaldehyde. By adding more urea under the proper conditions, any of the commonly known urea-formaldehyde resins used in the textile industry can be formed. *Uses:* For manufacture of resins for textile treating.

* * *

E I DU PONT DE NEMOURS & CO, INC
ORGANIC CHEMICALS DEPT
DYES AND CHEMICALS DIV
Wilmington, Del

Catalyst MC

Catalyst MC is an aqueous solution based on zinc nitrate. It is particularly effective in the application of Zeset* MC fabric stabilizer. The liquid form of Catalyst MC makes it easier to handle than hygroscopic salts that change in weight by taking up water from the air.. The quantity of Catalyst MC required varies from 20 to 40% based on the weight of Zeset MC used. For crease resistance or wash and wear effects, 20 to 30% is usually sufficient. For high resistance to chlorine retention damage, 30 to 40% is required.

*Registered trademark

EASTERN COLOR & CHEMICAL COMPANY
35 Livingston Street
Providence, RI

Cellamine 62-M

Modified, organic amino compound in self-emulsifying solvent system with higher active content. Permanent gas-fading inhibitor for acetate and acetate dyeing ,applied directly from dyebath.

Defoamer KD-X

Silicone-based emulsion defoamer. Emulsion is said to be very stable, yet ready for immediate use with no diluting. Effective at concentrations .005% to .01% in baths.

Ecco Aluminum Formate

Dibasic, aluminum formate, sulfate-free for use in textile waterproofing, as a mordant in leather tanning and for wet strength in paper manufacturing.

Eccoblanc W-45-B

Synthetic resin-based, white pigment compound for use as white pigment in roller printing. Highly recommended by the manufacturers as white pigment in discharge printing.

Eccolene C-455

Modified, synthetic resin emulsion prepared particularly for corduroy and cotton finishing to give higher luster with a soft, full hand.

Eccodacrol 506

Nontoxic, self-emulsifying, cyclic dye carrier for Dacron. Material is a soft paste, readily dispersible to give level, spot-free, dyeings on Dacron with full color value.

Eccodysist 88

Powerful, organic dye dispersant and leveler for use in dyeing dispersed colors on acetate and Dacron. In cotton dyeing, used as a leveling agent.

Ecco FM-521

Modified, polyethylene, high-molecular-weight emulsion. Stable to both annonyellowing, nonchlorine-retentive, soft finish.

Eccolene OW

Modified, sulfonated organic ester exhibiting wetting and rewetting properties together with softening, nonyellowing and fiber lubricity. Designed for use in the Sanforized process.

Eccosoft N-50

Nonionic, cold-water-soluble softener said to possess resistance to yellowing resulting from high temperatures. Used in "wash-and-wear" formulations on cotton and synthetic fabrics to give a softness durable to several launderings.

Eccosoft 440

Cationic, substantive softener for use on cotton and synthetics where cationic conditions are a requirement. Readily dispersible in warmed water and efficient at low concentrations.

Eccosoft 950

Anionic, substantive softener for use on cotton and synthetics. Readily dispersible in warmed water and economically efficient.

Gloprint Conc WK

Extender-resin binder for all aqueous printing of glass and cotton fabric. Dilutions of 8:1 result in a print paste, suitable for printing, exhibiting good flow characteristics, with clear, sharp prints.
Nemours Co, Inc

Low Crock AT

Aqueous, anionic emulsion said to be outstanding for its anticrocking properties. Applied as an aftertreatment over printed goods. Excellent nonyellowing properties with minimum effect on finished hand and softness are claimed.

Low Crock OSE-2

Unique, oil-soluble, anticrocking agent for use in W/O roller-printing systems to give maxmium resistance to wet and dry crocking of prints. Easily incorporated into print paste with no changes in the body or flow characteristics.

Metaglo X-6

Screen-printing binder for metallic printing of bronze and aluminum. Product exhibits improved flow and softness of print.

* * *

EASTMAN CHEMICAL PRODUCTS, INC
Subsidiary of Eastman Kodak Company
Kingsport, Tenn

Epolene* LVE

An emulsifiable, low-molecular-weight polyethylene. It is lower in viscosity than Epolene E and thus has better handling characteristics. Emulsions of Epolene LVE may be used as softeners and lubricants for rayon, cotton and synthetic yarns. Epolene LVE may be used in conjunction with hard "wash-and-wear" resins to produce the desired degree of flexibility and hand in the finished fabric.

Epolene* HDE

An emulsifiable, low-molecular-weight polyethylene characterized by its high density. Like Epolene LVE, it has a low viscosity which aids in handling. Emulsions of Epolene HDE should find use by textile finishers as softeners and lubricants.

2,5-Dihydroxybenzoquinone

A promising coupling agent in dyestuff manufacture and chemical intermediate in the preparation of dyes. Development quantities only.

Tetramethyl-1,3-Cyclobutanedione

An alicyclic diketone with possible use as a dye intermediate. Development quantities only.

* * *

EMERY INDUSTRIES, INC
Carew Tower
Cincinnati 2, Ohio

Twitchell* 7440 Lubricant

An antistatic lubricant for processing both natural and synthetic fibers. It is said to be water soluble and highly scourable, nonyellowing, and to have excellent lubricity. Twitchell 7440 has been certified by the Wool Associates of the New York Cotton Exchange, Inc, for use on commission top.

* * *

EMKAY CHEMICAL COMPANY
319-325 Second St
Elizabeth, NJ

Emka Defoam MS

A nonionic-base defoamer for low-cost foam and froth control. It disperses readily in water and is not affected by acid or alkaline conditions. A small

*Registered trademark

amount usually is sufficient to reduce or eliminate foam.

Emkagen LWS

A blend of amino condensates with coupling agents designed for maximum scouring efficiency with increased free-rinsing properties. It is claimed to be an excellent scour for wool, removing high amounts of oil and greases, producing wools with very low grease content, usually in the 0.2 to 0.5% range.

Emkalar 300

A prepared dye carrier based on chlorinated solvents and emulsifiers, prepared to produce maximum shade depth on polyester and triacetate fibers. It is said to be easy to apply with excellent stability in the dyebath.

Emkalar 527

A liquid dispersion of o-phenyl phenol. It is a prepared carrier for use with such synthetics as Dacron, Arnel and Kodel. A clear, bright oil dispersible in warm or cold water, it is said to have a high color yield and to be economically priced.

Emkalar AC

A fast-striking prepared carrier based on methyl salicylate. It is said to give excellent color yields in dyeing of polyester triacetate fibers.

Emkalar Base E-55

A blend of anionic surface-active agents. An emulsifier which will blend with various active intermediates to prepare dye carriers, each with different "strike". The use of Emkalar Base E-55 plus intermediates is said to make possible savings of approximately 50% in carrier costs.

Emkalon HT

A blended softener with cationic and anionic properties. It is said to impart unique softness and lubricity to goods. It is stated that this softener is soluble in warm water and has excellent stability in acid, alkaline or neutral solutions. Particularly useful where resistance to high heat is essential.

Emkaron GA-1

A sulfated fatty acid ester with low foaming characteristics. A clear liquid with good resistance to acid and alkaline conditions. It is said to be a good dyeing assistant and dispersant with fine wetting properties.

Emkatex JG-2

A high-boiling organic alcohol suitable for use in pasting various types of dyestuffs. It is said to be particularly effective in the print shop for fast, economical production of dyestuff liquors.

Emkatex NTA

A long-chain aliphatic condensate. This formulation has been developed to minimize tendering of fabrics during removal of crease-resistant resins with acids. It is stated that lubricating properties keep the goods soft and pliable during the resin removal, leaving it in good condition for redyeing or refinishing.

Emkatex SF

A concentrated dye dispersing agent particularly effective in producing trouble-free dye liquors containing "tough to use" acetate blues and blacks.

Rexoclean RC Base

An anionic sulfonate emulsifier base. Properly mixed with solvents, it makes a versatile cleaner, useful for the removal of stubborn soils, films and pigments from rollers and print blankets. It is applied to the surface and rinsed with water. The mixture of this base and solvent "on the spot" effects a considerable savings over prepared cleaners.

Rexosolve RF-2

A blend of suitable organic solvents with synthetic emulsifiers and detergents designed to assist in the removal of stubborn tars, greases and resistant stains. A bright, free-flowing liquid, easy to use and handle. It disperses readily to give stable water emulsions.

Rexowet 77

A fatty alcohol sulfate said to possess extremely fast wetting and penetrating properties. A light-amber-colored oil, easily dissolved in water. It is resistant to acid and alkaline conditions. A 0.1% solution in water gives a Draves-Clarkson wetting test of 12-14 secs.

Rexowet SG-81

An 80%-active di-octyl, sulfo-succinate, sodium salt in liquid form. This product is highly concentrated and is said to be an efficient wetting agent. It may be used "as is" or diluted to low concentrations for economical application.

* * *

FLAMORT CHEMICAL COMPANY
746 Natoma Street
San Francisco 3, Calif

Flamort* TC-Special

Fire-retardant compound for flameproofing of racing uniforms, work clothing.

* * *

GENERAL ELECTRIC COMPANY
SILICONE PRODUCTS DEPARTMENT
Waterford, NY

Dri-Film* Silicones

DF* 268

Stable methyl hydrogen polysiloxane designed to impart durable water repellency to textile materials as well as durable waterbourne spot and stain resistance, luxurious hand drape and improved sewability.

DF* 432

Stable modified methyl hydrogen polysiloxane designed to impart durable water repellency to textile materials as well as durable waterbourne spot and stain resistance, luxurious hand drape and improved sewability.

DF* 581

Stable modified dimethyl polysiloxane designed to impart durable softness as well as luxurious hand and drape and improved sewability. It does not yellow and is nonchlorine retentive.

* * *

B F GOODRICH CHEMICAL COMPANY
3135 Euclid Avenue
Cleveland 15, Ohio

Geon* Vinyl Latex

Geon* Latex 577—a water dispersion containing 55% by weight of a modified vinyl chloride polymer; ester plasicized. It is heat sealable, flame resistant, and used for coatings, binder, backing and sizing.

Hycar* Latices

Hycar* Latex 1572—A water dispersion containing 50% by weight of a carboxy-modified butadiene-acrylonitrile copolymer. *Uses:* High-film-strength, abrasion-resistant binder, backing and sizing.

Hycar* Latex 2511—A water dispersion containing 26% by weight of a thermoplastic polymer of acrylonitrile and styrene. *Uses:* Stiffening and reinforcing, eg, shoe components.

Hycar* Latex 2750x1—A water dispersion containing 50% by weight of a carboxy-modified butadiene-styrene copolymer. *Uses:* High-film-strength binder, backing.

Hycar* Latex 2570×5—A water dispersion containing 42% by weight of a modified-carboxy -containing butadiene-styrene copolymer *Uses:* Extra-high-film-strength binder and backing.

Hycar* Latex 2600×67—A water dispersion containing 50% by weight of a modified acrylic polymer containing carboxylic groups. *Uses:* Colorless, wash-fast, drycleanable binder, backing, sizing.

* * *

CHEMICAL DIVISION
GOODYEAR TIRE AND RUBBER COMPANY
Akron, Ohio

Pliolite Latex 140

A water dispersion of styrene/butadiene copolymer (60/40) containing a nonstaining antioxidant system. The latex dries to form tough flexible films at room temperature without additional curing agents. Its use is suggested in textile sizings, upholstery and carpet backing, printing inks, and carpet scrim adhesives.

Pliolite Latex 141

The same latex as 140 without the incorporated antioxidant system. It is designed for those who prefer to add their own antioxidant.

Pliolite Rubber Latex 5352

A high solids product developed for use in 100% synthetic latex foam compounds. Extremely stable, with large particle size, the latex has high rubber-carbon content and closely approximates natural rubber latex. The latex may quite possibly replace the natural product in many textile applications.

* * *

HAMILTON CHEMICAL CORP
45 Andrews St
Lowell, Mass

Catalyst MC

An all-purpose catalyst recommended for thermosetting resins where maximum protection to chlorine damage and discoloration is afforded with excellent bath stability under low curing conditions.

Hamco Anti-Crock P

A modified acrylic emulsion adaptable for both water-in-oil and oil-in-water pigment printing or dyeing systems. Anti-Crock P is claimed to impart optimum resistance to wet and dry crock-

*Registered trademark

*Registered trademark

ing with outstanding durability and nonyellowing properties.

Hamco PE

A finely-dispersed nonionic polyethylene emulsion which is nonchlorine retentive, nonyellowing and provides outstanding seam efficiency with improved tear strength of resin-treated cotton fabrics.

Hamco Pure-Tize

A quaternary ammonium complex which provides protection against bacteria and bacteria-producing odors. Pure-Tize may be sprayed, padded or exhausted onto cotton, wool and synthetic fabrics and is said to withstand repeated laundering and drycleaning.

Hamco SIL

An economical silicone type softener recommended for all types of fibers and fabrics where durable yarn lubricity and silkiness of hand is required.

Isoionic N

A nonionic product which imparts level-dyeing properties to acid and neutral premetallized dyes on nylon. Isoionic N forms a complex with the anionic dye, and at pH of 4.0-5.5 this complex gradually dissociates and liberates the dye, allowing it to be absorbed by the fiber.

Softener PR

A nonionic, cold-water-soluble and durable softener designed primarily for use with thermosetting resins to obtain improved lubricity and strength characteristics.

* * *

THE HART PRODUCTS CORPORATION
1440 Broadway
New York 18, NY

Cyclazone A

Thermosetting cyclic urea resin for "wash-and-wear" finishes on cotton goods. Possesses excellent resistance to chlorine damage.

Emulsifier 2409

A mixture of synthetic surface-active agents for preparation of wool oils. Has high capacity for mineral oils and yields stable emulsions.

Hartopel R

A durable, thermosetting-resin-type water-repellent finish. Used together with thermosetting resins to give "wash-wear" finishes with high spray and crease ratings.

Hartoresin A93

A modified alkyd resin for producing a soft, satin finish on blanket tapes. It is said to have excellent resistance to markoff.

Hartoset LF

A methylated urea-formaldehyde with low free formaldehyde. Recommended for stabilization of cotton knit goods. It is said to give good shrinkage control with low processing and residual odor.

Hartovel A

A cationic softener of the quaternary type recommended as a softener for Orlon fibers. Yields goods with a cashmere hand and shows high stability and resistance to discoloration.

Metabond A

A polymeric binder for use with gold and silver metallic powders in machine printing. It is claimed to give prints with superior luster and excellent resistance to washing, drycleaning and crocking.

* * *

E F HOUGHTON & CO
303 West Lehigh Ave
Philadelphia 33, Pa

Rezosol No. 1438

Size and binder for Dacron and other synthetics. Solution of acrylic copolymer.

Rezosol No. 1460

Size and binder for Dacron and other synthetics. Has low water sensitivity. Solution of acrylic copolymer.

* * *

KESSLER CHEMICAL CO, INC
State Road & Cottman Ave
Philadelphia 35, Pa

Kessco X-420

A long-chain fatty acid ester. It is unique in that it is a high molecular weight, saturated ester with a freezing point of approximately 0°C. Low odor, low viscosity, light color and heat stability suggest its use as a lubricant and softener for natural and synthetic fibers.

Kessco X-421

The unsaturated acid equivalent of Kessco X-420, having an iodine value of approximately 48.0. Freezing point, —57° C. Viscosity, 29 cp. May be sulfonated to produce wetting agents.

Kessco X-422

Liquid, high-molecular-weight unsaturated fatty acid ester, with lubricating and softening properties. Contains free primary hydroxyl groups which impart strong surface-active properties. In conjunction with anionic agents, it may be readily dispersed in water or function as emulsifying base for lubricating compositions.

Kessco X-423

The saturated acid equivalent of Kessco X-422. A white wax with extremely low odor having a melting point of approximately 33°C. Exhibits surface-active properties and lubricating effects similar to those of Kessco X-422.

* * *

KOPPERS COMPANY, INC
CHEMICALS & DYESTUFFS DIVISION
Pittsburgh 19, Pa

Napthol Assistant SS

A stabilizer for diazo baths, and emulsifier for loose pigment particles in naphthol dyeings. Added to the coupling bath, it minimizes crocking. Aids in removal of free color lakes on the fiber.

* * *

LAUREL SOAP MANUFACTURING CO, INC
Tioga, Thompson and Almond Sts
Philadelphia 34, Pa

Lauramine HT

An anionic softener recommended for finishing of cotton yarn and fabrics. It is recommended where high-speed, high-temperature dryers are used on packages since it is said to minimize the tendency of clogging the filters on such equipment.

Lauravel SC

A nonionic-type softener which is said to show excellent stability to acid and high-salt-content solutions. It is recommended for use on both natural and synthetic yarns and fabrics where a full soft hand with lubricity is desired.

Metrosol BC

A liquid synthetic fulling agent prepared especially for use on woolen fabrics and blends. It is suitable for use over a wide range of weights and constructions, and is said to give a soap-like hand with good cover and fulling characteristics. Metrosol BC is stable to both high and low soda ash concentrations and can, therefore, be used for conventional fulling as well as fulling in the grease. It is readily dissolved in water without boiling, and, it is claimed, will give the finisher one product suitable for all fulling and scouring requirements.

Metrosol RX

A paste-type product recommended as a combination washing and finishing agent for use on sweaters and other types of garments. It is suitable for use on lambswool, cashmere and wool blends, as well as synthetics such as Orlon and Acrilan. It will remove oil and grease and leave the garment with a soft, full hand and free of residual odor. It is stated that it will perform both the washing and softening steps in one operation and thereby save time for the finisher.

Pyrosan M

A granular flame retardant recommended for use on natural, synthetic and blended fabrics. It is claimed to give excellent control of after-flaming and after-glow properties and leave the fabric with a good hand.

Pyrosan S

A granular flame retardant recommended for use on nylon and acetate fabrics. It is suitable for use on drapery and upholstery fabrics, as well as tricot and similar open constructions.

* * *

LENOX CHEMICAL COMPANY
Printery Street
Providence 1, RI

Acrylic Retarder LC

A cationic water-soluble liquid assuring level uniform dyeing with excellent color depth. Acrylic Retarder LC when used on 100% acrylic fibers as well as blends is said to assure maximum results especially on light shades and pastels.

Dacrex LC

A readily soluble and stable emulsion nontoxic dye carrier for polyester fibers. With the use of Dacrex LC bright, level dyeing with optimum color yields are said to be assured.

Defoamer LC

A stable, nonionic, silicone-based, smooth, white paste, which is very effective in low concentrations. Defoamer LC is nontoxic, noncrusting and readily dispersible in aqueous systems.

Lenopel #1 and Lenopel #2

A two-component semidurable water repellent for cottons and synthetics which is said to offer maximum durability on wool. It will withstand considerable washings and drycleanings. Lenopel #1 and Lenopel #2 are applied from a single bath. On nylons and acetates, the absence of stiffening and chalking off are said to be outstanding.

Lenopel WR

A renewable nonyellowing water repellent for cottons, rayons, acetates or woolens giving a 95-100 spray rating. Lenopel WR may be applied by padding. It is stated that it imparts a soft handle to the goods and will not effect the dye shades or tensile strength. Lenopel WR coats each fiber individually, permitting "breathing", unlike the older water repellents which filled the pores of the cloth.

Lenoscroop 125

A pure, white, cold-water-soluble napping softener which is said to offer maximum crunch on cotton fabrics, most applicable to flannels. The product is nonyellowing and will not effect the dye shades. May be padded or added in last rinse of dyebath.

Lenoscroop 333

A highly versatile, readily soluble, nonyellowing scrooping and napping softener which is said to offer a lofty hand to cotton and synthetic fibers and fabrics alike. It will not effect the dye shades and is preferably padded on although can be added in last rinse of dyebath.

Lenosoft 300-W

A cold-water-soluble, nonionic, nonyellowing softener most suitable for cottons and synthetics completely compatible with resins, starches and weighters in producing a soft mellow hand. Lenosoft 300-W is widely used for CRF ("wash-and-wear" finishes) and where glaze or lustrous schreiner type of handle is desirable. It is claimed that it has excellent crease-angle recovery, tensile strength, abrasion resistance, high sewability and will not contribute to chlorine retention. It will not volatilize curing at high temperatures.

Lenosoft 300-WB

A nonionic, nonyellowing, easily soluble product of extremely high softening and bulking properties. It is claimed that it produces the nearest type of hand to a cationic softener, but does not have the disadvantages of yellowing or noncompatibility with certain fixatives and agents which a cationic softener might have. Similar advantages to Lenosoft 300-W alone.

Lensol 35

A cashmere spinning lubricant of highest nonyellowing properties producing an extremely soft hand. It is claimed that Lensol 35 offers maximum carding yields with optimum scourability. Also applicable to other specialty fibers and wools.

Lensol 200 SM

A highly antistatic, nonyellowing, nonionic self-emulsifying lubricant. Lensol 200 SM is highly recommended by the manufacturers for combing and spinning for all synthetic and specialty fibers, particularly mohair. It is claimed that Lensol 200 SM also has shown extremely favorable results in the processing of synthetic tow and for spinning synthetic carpet yarns on the woolen or worsted systems. The product offers maximum cohesion and static control with optimum scourability.

Lenostat Plus

A liquid, easy to handle, 100%-active nonionic antistatic agent for natural and synthetic fibers. When used in very small percentages, Lenostat Plus is said to assure maximum static protection. When applied in the last rinse of the dyebath, Lenostat Plus is said to offer complete static protection during subsequent processing, particularly on acrylic and polyester fibers.

Lentex 500

An antistatic lubricant for coning of Ban-Lon and bulk yarns. Lentex 500 is of low viscosity, and is claimed to offer maximum static protection with very low frictional properties. It is stated that the product is highly scourable and definitely nonyellowing to be applied undiluted by trough and roll.

* * *

MAC CHEMICAL COMPANY
5113 Kingston Pike
Knoxville, Tenn

Scourwet TP

A concentrated combination scouring and wetting agent which, it is claimed, has proven highly effective on wool, cotton or synthetic fibers. It is readily soluble and is said to assure excellent results in the removal of grease, graphite carbon and other foreign matter. It may be used in an acid or alkaline bath and will not break down in either and is said to produce excellent results in kiers, open becks, pads, reel machines, or package machines.

* * *

MANUFACTURERS CHEMICAL COMPANY, INC
930 North Darien Street
Philadelphia 23, Penna

Durafluff

A fabric softener, stable cationic polyethylene emulsion for application to all types of textile fabrics. It is said to give material soft, silky hand with good drape and to be exceptionally resistant to abrasion and to improve sewability.

Flame Retardant

Liquid or powder, inorganic, renewable treatment for cotton and viscose rayon, wool and synthetics.

Maniflex B

A coating for carpeting. It is a vinyl plastic emulsion concentrate, or can be diluted before application depending on requirement. Applied by any convenient fashion.

Maniflex #362

For rubberized curled hair. It is said to greatly increase resilience, prevent set, and enhance dimensional stability as well.

Maniflex #388

For upholstery. Excellent pile lock, negligible gas fading as well as desirable resistance to heat and light are claimed.

Maniflex #500

Coating for high-pile knit goods. It is a modified vinyl plastic emulsion concentrate, diluted one to three parts compound to ten parts water. It is claimed to be resistant to laundering and drycleaning.

* * *

MELROSE CHEMICAL CORP
140 Essex Street
Melrose 76, Mass

Catalysts

Melco Catalyst JBHN—Buffered inorganic salt. Nonammoniacal catalyst for urea-formaldehyde, ethylene urea-formaldehyde and melamine resins.

Melco Catalyst MIC—Modified organic amine salt. Catalyst for curing of melamine, urea-formaldehyde and ethylene urea at a wide temperature range.

Melco Catalyst MIC—Modified organic complex for curing of melamine, urea-formaldehyde and ethylene urea resins in a short time.

Penetrants and Detergents

Melcolite GPT—Nonionic surface-active agent. For wetting, detergency and particularly for afterwashing of prints of naphthols, pigments, vats and fiber-reactive dyes.

Melconon PNF—Nonionic surface-active dispersing and penetrating agent for use in wide goods dyeing, vat and sulfur colors and for better penetration of resins.

Melcogel Conc Liquid—An amide sulfonate detergent for dyeing assistance, wetting, soaping, scouring.

Softeners

Melcolite #110—Anionic wax emulsion. Softener, lubricant. Antistatic wax emulsion for use in dyeing and finishing and to prevent needle burn.

Melconon #150—Nonionic wax emulsion. For use in finishing with resins and as a lubricant and softener and in electrical insulation where the absence of electrolytes is important.

Softener GC—Cationic modified fatty amide. Substantive cationic softener for use in resin baths to give a full hand. It is said to be nonchlorine retentive, unusually resistant to high temperatures and hot pressing. Recommended where excellent crease angle, tensile and tear strength, abrasion resistance and needle lubrication are desired.

Weighters, Finishing Agents & Assistants

Melco-Perm A—Modified protein resin. It is said to be capable of accepting seven times its own weight in inert materials such as chalk, talc, etc. Used in resin finishing and weighting and stiffening.

Melco-Perm FA—Modified resin protein base. Acceptor of free formaldehyde in resin finishing and is said to increase tensile and tear strength in resin finishing.

* * *

METRO-ATLANTIC, INC
Centredale 11, RI

Atco EUS

Atco EUS is ethylene urea supplied in a free-flowing dry flake form that contains very low amounts of insolubles. It is stated that ethylene urea resin made from Atco EUS is highly purified and, therefore, requires very little or no filtering to improve its clarity. Either formaldehyde or paraformaldehyde can be used with Atco EUS to manufacture the ethylene urea resin. Due to its free flowing flake form, Atco EUS is very easy to handle and to load accurately into reaction tanks. Due to its high purity, Atco EUS can be used for other commercial purposes besides textile resins.

Atco Reserve Salt L

Atco Reserve Salt L is a special type of organic oxidizing agent, sodium salt of meta nitrobenzene sulfonic acid, which is used to prevent the formation of

cloudy and streak effects on discharge-printed, dyed-ground shades. The activity of the Atco Reserve Salt L is specific in so much as it does not react as an oxidizing agent except in the presence of the vat-color-reducing agents and thereby does not affect the dyed-ground color shade. This special property is utilized also in printing vat-color-resist patterns.

Atcosel**

Atcosoft RO was specifically produced field of bleaching agents. It is clear crystal soluble in water which contains a high concentration of available oxygen that can be liberated under controlled conditions of pH and temperature. It is claimed that this product eliminates the hazards and inconvenience of handling highly concentrated liquid and powdered bleaches. It is further claimed that plant personnel can handle Atcosel without danger and undesirable physiological effects encountered ordinarily in the handling of many other types of bleaching agents. It makes possible a one-cycle operation of desizing, boiling off, and bleaching on most fibers and fabrics which can be carried out in conventional becks, jigs, and other open equipment. It is effective in bleaching wool, cotton, rayon, acetate, and most other synthetics and their blends.

Atcosoft RO

Atcosoft Ro was specifically produced as an all-purpose softening agent for use on wool, silk, Orlon, nylon, Dacron, and the newer synthetic fibers. This product also gives good resistance to yellowing from heat and is compatible with other finishing agents. It is claimed that this product may be applied by padding or exhaustion to impart excellent softening effects on fibers.

Atcosoft XP

Atcosoft XP was developed primarily for use as a softening agent in thermo-setting-resin finishes. It is said to give excellent bath stability, and finishes produced with it are said to possess good resistance to yellowing from heat with no tendency to develop odor. This product may be applied by padding or exhaustion to impart excellent softening effects on fibers.

Chlordare OR

Chlordare OR is a new resin developed for stabilization and crease resistance utilized in wash-and-wear finishes for cotton fabrics. Chlordare OR is characterized by its odor resistance as well as its chlorine resistance. It may be blended with softeners, builders, and silicone water repellents to obtain a desirable finish. Chlordare OR is said to contribute durability along with its other properties so important in a wash-and-wear finished garment.

Thermorez

Thermorez is a new resin which was developed to impart wash-and-wear characteristics to rayon-mixed fabrics. This product is claimed to produce extremely high wet and dry crease resistance with a full mellow hand and a minimum effect on tearing strength and abrasion. It can be blended with softeners, water repellents, and other materials for a wide variety of finished effects. It is stated that one of its outstanding properties is that it does prevent progressive shrinkage. This product is claimed to be a tremendous asset to "wash-and-wear" finishing of synthetics.

**Patent pending

* * *

M MICHEL and COMPANY, INC
90 Broad St
New York 4, NY

Michelene* D-4

A sulfated fatty acid amide in paste form, stabilized to prevent salting out or separation in storage. For cleaning and scouring heavy pile fabrics, velours, chenille, mohair, etc.

Michelene* 45

A cationic softener, alkali- and acid-resistant, with little tendency to yellow. For imparting a full, "cashmere-type" hand on Orlon, Orlon-wool, Dacron-cotton, nylon, and viscose goods.

* * *

NOPCO CHEMICAL COMPANY
60 Park Place
Newark 1, NJ

Defoamer—Nopco KF-99

It is claimed that very small quantities of this low-cost textile mill defoaming agent will effectively dispel all foam in systems of pad, jig, and package dyeings, warp size baths, printing pastes and in resin-finishing formulas. Minute percentages of Nopco KF-99 will also control the amount of foam in scouring baths, boiling-off processes and in latex backing processes.

Finishing Compound—Nopcotex AR-35

A smooth, cationic, white paste softener for cotton and synthetic fabrics which is recommended for acrylic knitted goods. It is said to be effective on towelling, polyester, polyamide, and the newer synthetics where extreme softness is desired. It provides absorbency, has a wide compatibility range, is nonchlorine retentive is odorless and is nonyellowing.

Surfactant—Nopco 9092

A surfactant designed for fulling and scouring of woolen and worsted fabrics. Fabrics fulled with Nopco 9092 do not require additional detergent in the washer. It is stated that it is easily rinsed from the fabric, has excellent foam stability and is soluble in cold water. Excellent soda ash stability can be had in soda ash solutions as high as 14 oz per gallon.

* * *

ORGANIC CHEMICAL CORPORATION
84 Valley Street
East Providence, RI

Orcocene Softener #83N

Developed especially for the softening of piece-goods blends of synthetic fibers and wool, such as wool-Creslan and wool-nylon, the product is said to impart to "wash-and-wear" fabrics that desired hand of flexibility and resilience without harshness.

Orco* Feltacine

This compound is an acid cleaning agent for paper-makers felts and woolen goods. Since its scouring action takes place in the pH range below 7, the usual detrimental effects of alkaline scouring are absent. Its use is said to aid the wool in maintaining tensile strength and also result in a softer, loftier hand. Just ordinary rinsing or flushing of the fabric after scouring will clean the fabric of all matter put into suspension by the Orco Feltacine. The product is noncorrosive and does not attack metal and rubber as does sulfuric acid. It will, in fact, have a tendency to clean the surface with which it comes in contact.

*Registered trademark

Orcolene B 200

This product is a catalyst for the rapid reduction of bichromate of soda and other chrome products when used in the dyeing of wool. It is claimed that its use in the traditional top-chrome procedure shortens the dyeing cycle considerably and as a result, a saving is effected in time and labor. Also, due to the shorter time which the wool is in the dyebath there is a definite gain in tensile strength of the wool and a consequently final fabric with a much softer hand.

Orcopen NF

A new, all-purpose nonionic, nonfoaming wetting agent and detergent, this product is recommended for machine use on all fibers, yarns, and piece goods where the extreme of wettability is desired without the usual attendant foam problem. Orcopen NF is compatible with and stable to most wet-finishing chemicals, auxiliaries and dyestuffs.

* * *

PABST BREWING COMPANY
Merchandise Mart
Chicago 54, Ill

Exsize HA

A carefully standardized desizing agent high in starch digesting activity. It also contains an appreciable amount of protease. Harmless to all fabrics.

* * *

PARA-CHEM, INC
Ontario and Rorer Sts
Philadelphia 34, Pa

Parafix

An emulsion of a modified acrylic polymer supplied at 46% total solids content. It is used on fabrics to impart durability, water repellency, soil resistance, abrasion resistance and crockfastness, both dry and wet, to face yarns.

Paralube* SB

A new antistatic lubricant designed specifically as a processing aid for polyester and polyester-blended staple fibers. This cold-water-dispersible liquid product is said to provide excellent static control and effective lubrication at relatively low percent application. Properly finished staple will show an improvement in running quality in all processes, resulting in a better spun yarn and more efficient mill operation. It is easily removed in normal scouring procedures, resistant to yellowing and is light and storage stable.

Paralube* 80-ST

A new water-soluble nonionic emulsifier which tolerates a high degree of hardness and the presence of most electrolytes. It is claimed to impart a very slippery finish when applied to acrylic fibers. Finds widespread usage as a sizing adjunct with resinous loom finish sizes for acetate yarns. It is said to function as a lubricant/plasticizer for such

*Registered trademark

sizing formulations, eliminating can sticking and other processing difficulties oftentimes encountered when sizing warps with these new resins.

Paralube* 81-ST

A self-emulsifying nonionic emulsifier which tolerates a high degree of hardness and the presence of most electrolytes. Mixes readily with mineral and vegetable oils making them self-emulsifying and improving their lubricating and softening properties. Well suited as the emulsifier for glass-fiber binder formulations so necessary for the efficient production, processing and fabrication of glass textile yarns.

Paranol Colloids

Custom emulsions, usually a combination of surfactants and stabilizers, for use in compounding latex systems for textile finishing in fabric backsizing, coating and saturation.

Paranol Dispersions

Custom dispersions of one or more chemicals required for use in compounding latex systems for vulcanization. To be used for textile finishing in fabric backsizing, coating and saturation.

Paranol Latex 100

A 50/50 butadiene/styrene hot polymer supplied at 49% total solids content. It is used in curing-type latex compounds for application as backsizing on upholstery fabrics, carpets and nonwovens. Possesses good heat and light aging characteristics and does not gas fade.

Paranol Latex 200-A

A 50/50 butadiene/styrene hot polymer supplied at 48% total solids content. It is used in noncuring latex systems for the application to carpet giving soft to medium hand. Contains antioxidant and has good heat and light aging characteristics and does not gas fade.

Paranol Latex 210-A

An 85/15 butadiene/styrene hot polymer supplied at 47% total solids content. It is used in noncuring latex systems for application to carpet giving medium to firm hand. Contains antioxidant and has good heat and light aging characteristics and does not gas fade.

Paranol Plastic Series

Custom processed and compounded acrylic emulsions for backsizing upholstery fabrics imparting excellent heat and light aging characteristics and a wide range of handle from soft to firm. They can be processed through dyeing and scouring operations.

Paranol Resin #10

A vinyl acetate copolymer supplied at 50% total solids content. It is used in modifying textile latex compounds built for backsizing and coating applications involving the lamination of various types of fabrics.

Paranol Resin #11

A vinyl acetate homopolymer supplied at 55% total solids content having wide application as a textile finish as well as a vehicle for various adhesive formulations for laminating different types of fabrics. The resultant colorless film has a high degree of clarity, good adhesion and excellent resistance to water.

* * *

PENNSYLVANIA INDUSTRIAL CHEMICAL CORPORATON
120 State St
Clairton, Pa

Piccotex Resin

A new water white resin developed by Picco for use in those fields where its unique properties may be considered advantageous. Piccotex, like all Picco resins, has insignificant acid and saponification numbers, but in addition Piccotex has a negligible iodine value. Piccotex is a copolymer of styrene homologues; it is a permanently thermoplastic and neutral hydrocarbon polymer having a specific gravity of 1.06. Along with its water-white color and complete solubility in low-solvency petroleum naphthas, Piccotex indicates good aging characteristics. Available in 100°C and 120°C softening points, Piccotex is offered also in aromatic and odorless mineral spirits solutions of 50% solids. Piccotex resins are hard, dry, and friable, making them suitable for a wide variety of formulating and compounding applications where low-cost hydrocarbons may be used to advantage.

* * *

PFISTER CHEMICAL WORKS, INC
Ridgefield, NJ

CaFeMag* (Crystalline)

Organic sugar acid sequestering agent for use in caustic concentrations of 2 to 30%. Sequesters various polyvalent metals including iron, calcium, magnesium, copper and aluminum. For use in kier-boiling, mercerizing, caustic boil-off.

* * *

PIONEER CHEMICAL WORKS, INC
940 North Delaware Ave
Philadelphia 23, Pa

Arylan LF-357

An alkylaryl sulfonate, nonfoaming liquid pentrant, for use as a dyeing assistant.

Sapophan AF

A synergistic combination of alkylaryl sulfonic acids and amine condensates for fulling and scouring in acid medium.

Softener-W-12-M and Softener-W-52

Amine condensation products, cationic in nature, to be used for softening of all textile fibers.

Terjol

An alkylaryl polyester product for uses as a wetting agent, dyeing assistant, and scouring agent.

Terjol AS and Terjol NA

Combinations of special types of amine condensates and amine soaps, said to be stable in high concentrations of soda ash up to 10%. They are said to be excellent fulling and scouring agents.

* * *

POLYMER INDUSTRIES, INC
Springdale, Conn
POLYMER SOUTHERN DIVISION
Greenville, SC

Adhesive 1713B

An aqueous emulsion adhesive which, when dried, produces a pressure-sensitive film. It is recommended for screen-table work for adhering fabric or garments to be printed.

*Registered trademark

Adhesive 1767

A high solids aqueous adhesive, especially designed for adhering fabrics to automatic screen-printing machines.

Emulsion Base 1740 R-2

Designed as a base for preparing oil-in-water emulsions for printing direct, acid, basic, acetate and fiber-reactive colors. This thickener is said to produce prints with excellent color value and sharp details and to rinse out easily in high-speed continuous washers.

Emulsion Base 1750 R-2

Designed as a base for preparing an oil-in-water emulsion for printing conventional vat dyes. This product is said to produce prints with excellent smoothness, color value, sharpness and to rinse out easily in high-speed continuous washers.

Low Crock Binder 1718 R-1

An acrylic copolymer resin said to have excellent binding power for pigments to all classes of textile fibers. It is reported to have excellent light/wash cycle stability, and is recommended primarily for use in all-aqueous or oil-in-water printing systems.

Pigment Binder Concentrate 1717 R-1

A thickener and binder which can be used in an all-aqueous phase or used as an oil-in-water emulsion. This thickener performs equally well for screen printing by hand, machine or by the roller-printing technique. This binder is said to have excellent all-round fastness properties.

Polygum 260 R-1

A fast dispersing, nondusting dry gum ether with high-viscosity characteristics recommended for thickening all types of dyestuffs for screen and machine printing. This product is claimed to be outstanding as a thickener for direct, basic, acid, and dispersed dyestuffs. This product is also reported to be an ideal gum base and colloid for oil-in-water emulsion thickeners for printing.

Polyfilm 1732

A high solids free-flowing solution of carbohydrates ester recommended as a stiffening agent and body builder in conjunction with thermosetting resins. This product is said to produce exceptional stiffening qualities with minimum effects on tensile and tear strength.

Polylube PE

Nonionic polyethylene emulsion said to be compatible with a wide range of finishing materials such as starch, gums and synthetic resins. It is stated that this product imparts good sewing qualities, reduces abrasion tendencies of thermosetting resins, as well as producing a top silky hand.

Polylube NI-20

Warp size softener designed to be self emulsifiable in cold water for use with jet cookers. Produces excellent surface lubricity.

Polypad

An all-aqueous resin binder for pigments for pad-dyeing cotton and synthetic fibers. This product is reported to have excellent all-round fastness properties and exceptional solvent fastness. It is designed for use with Impad colors.

Polysoftener NI
A 100% concentrated nonionic softener which is said to be highly resistant to yellowing at curing temperatures, and to produce fabrics with an excellent softness and lubricity.

Polywax OS
A self-emulsifiable softener and lubricant for use with starch for warp sizing cotton or synthetic fibers.

Polywax OW
A self-emulsifiable wax for over-waxing sized warps of synthetic and natural/synthetic fibers.

Rinsefree Tints
A complete line of aqueous tints for all types of synthetic fibers.

* * *

PROCTER & GAMBLE COMPANY
301 East Sixth Street
Cincinnati 2, Ohio

Orvus ES Paste Concentrate*
A modified sulfated fatty alcohol, a more highly concentrated form of Orvus ES Paste*. A light amber-colored liquid above 70°F. Soluble in hot and cold water. pH of approximately 7.5. An efficient textile detergent said to possess excellent resistance to oxidation, acids, and alkalis over a wide range of operating conditions. It is free rinsing at low temperatures, yet can be safely left in fabrics if desired for added softness. It is safe and economical for practically all wet processes, such as scouring, kier boiling, bleaching and dyeing. It is claimed to be excellent for soaping water repellents or in scouring operations where lubrication is advisable.

Saratoga Chips*
A high-titer, neutral soap made from distilled fatty acids, useful in all textile operations where high-titered soaps can be employed to take advantage of their excellent detergency, emulsifying, suspending, and lubricating properties.

* * *

PUTNAM CHEMICAL CORP
Beacon, NY

Antistatin LF
A quaternary organic nitrogen compound. Cation-active. Recommended as an antistatic preparing agent for synthetic fibers. It is a yellowish, slightly viscous liquid of neutral reaction, easily soluble in water. Due to its distinctly pronounced cation-active properties, it has a noticeable affinity for practically all textile fibers and can be used for antistatic effects during the various stages of preparation or finishing. Also due to its cationic properties, Antistatin LF is not easily removed in washing.

Basosoft MW
This is a fatty acid condensation product, cation-active. A brightening and softening agent, particularly suitable for knit goods. It is readily soluble in hot water. Basosoft MW can be combined with most finishing agents, including synthetic resins, and is said to produce an exceptionally soft and full hand.

Basosoft OK
It is a cation-active fatty acid condensation product. It is particularly suitable in the padding operation with optical brighteners. Also recommended in conjunction with Lurotex A 25, which represents a product imparting a certain water absorbency to synthetic fibers. Basosoft OK is said to be resistant to hard water, to have antistatic properties, and can be combined in the finishing operation with synthetic resins.

Basosoft SG 100%
This is a fatty acid condensation product, nonionic, particularly recommended for rayon staple and synthetic fibers. Basosoft SG 100% is a wax-like substance which dissolves readily in water and is compatible with other finishing agents. It has at the same time good antistatic properties.

Basosoft TS
Anion-active sulfonated tallow derivative, particularly valuable for use on cotton and rayon and on knitted fabrics, producing a soft, full hand.

Basosoft UV
As a softening agent, it produces a soft full hand on rayon fabrics and blends containing wool. It can be used in combinations calling for a "wash-and-wear" finish. Basosoft UV is an anion-active sulfonation product of a mixture of fatty alcohols and paraffin hydrocarbons. It is particularly recommended for use in the Lumatex pigment padding system to produce any degree of softness.

Chlorite Stabilizer BASF
It represents a combination of high-molecular conversion products and is said to possess sequestering properties. Recommended for use in sodium chlorite bleaching of vegetable and synthetic fibers. It is stated that it has an excellent tabilizing effect, reducing considerably the unpleasant odor caused by the liberation of chlorine dioxide from the bleach bath. It has good wetting and cleansing properties as well as a good softening effect. It also provides a certain degree of protection against corrosion.

BASF Leveling Agent TX 1200
The product is recommended as a leveling agent for use in the dyeing of acrylic fibers with either basic dyestuffs or with Basacryl cationic dyestuffs. It is a surface-active quaternary ammonium compound, a light-brown clear, somewhat viscous liquid, completely soluble in either cold or hot water. The product is of neutral reaction and is stable to acids, hard water and electrolytes. BASF Leveling Agent TX 1200 is cationic. The leveling action is based on its property of temporarily substituting the basic or cationic dyestuff in the fiber during the dyeing cycle.

Lurotex A 25
A nonionic polyamide derivative. Lurotex A 25 imparts a certain water absorbency to hydrophobic synthetic fibers. The product has no substantivity but is compatible with the usual finishing agents, including synthetic resins and softeners.

Necessan A
A polyacrylic acid salt in combination with surface-active agents. Necessan A is recommended as an addition to pigment pad liquors. It is stated that it will retard the undesirable migration of pigments during the drying operation and will also prevent an agglomeration of pigment particles. It can be used in vat color pad liquors and other pigment padding operations.

BASF Padding Auxiliary TX 3032
Primarily recommended for penetration of pigment pad liquors. It is an anion-active, practically neutral liquid, readily soluble in water. It is stable to hard water, alkalis and acids in the usual concentrations used in textile plants. It is claimed that, due to its excellent penetrating action, it can be used on unprepared goods in vat as well as pigment padding operations, producing level results with excellent penetration.

Palatinit TX 5064
The product is an aromatic ether recommended as a dyeing accelerator or carrier for use in dyeing polyester fibers or their blends. It is suitable for use with all disperse dyestuffs as well as with the special range of such types as the Palanil dyestuffs recommended for coloring polyester fiber. Palatinit TX 5064 is said to have exceptional properties as it is completely hot-water-soluble. It can be removed, therefore, from the fiber after the dyeing cycle is completed and does not impair the shade or fastness to light of such dyeings. Palatinit TX 5064 is nontoxic and will not cause specks in the dyeing operations.

Perstabilizer BASF
This salt of polycarboxylic acid is recommended as a stabilizer for use in caustic, alkaline, peroxide bleach baths. It is said to stabilize the active oxygen in caustic, alkaline bleach baths. It prevents too rapid a liberation of oxygen, particularly at elevated temperatures, thus controlling the oxygen consumption. It has also an anticatalytic effect on the metallic or metal salt contaminations often contained in the goods to be bleached or in the chemicals employed.

Solvocine PFD
Fixing assistant in printing acrylic and other synthetic fibers. Solvocine PFD speeds up the fixing of dyestuffs in steaming and eliminates a pressure steaming operation in favor of a continuous aging. It represents a yellowish, slightly viscous liquid.

* * *

QUAKER CHEMICAL PRODUCTS CORPORATION
Lime & Amerds Streets
Conshohocken, Pa

Quaker Dianol* CPB
A new type of synergized surface-active agent, Dianol CPB is said to be effective in enzyme desizing and peroxide bleach baths where its properties of good initial wetting, bath stability and good rewetting are necessary. It is supplied as a flowable gel.

Quaker Prosotex* CR
A clear liquid scroop recommended for flannels, blanket fabrics or wherever a high-quality scrooping agent is required. The product is instantly dispersible in water.

Quaker Prosotex* S-4
An efficient, durable, thermosetting water repellent. The product may be used alone or in conjunction with thermosetting resins in "wash-and-wear" finishing. It is recommended for cellulosic fabrics.

*Registered trademark

*Registered trademark

*Registered trademark

Quaker Reactant* 6
A modified glycol acetal recommended for applications requiring medium crease angle, this product provides dimensional control. Monsanto crease angle is in the range of 220° to 235° with a minimum of fabric loss.

Quaker Reactant* 70
A modified glycol acetal that provides high crease angle for cotton "wash-and-wear" finishing. The duability of this finish is claimed to be outstanding.

Quaker Reactant* 92
A modified reactant finish for rayon "wash-and-wear" finishing. This product is said to provide excellent dimensional control, and good wash 'n wear characteristics with minimum effect on abrasion resistance and strength.

* * *

RICHMOND OIL, SOAP & CHEMICAL CO
1041 Frankford Ave
Philadelphia 25, Pa

Ban Scour
A special type of soap compound in combination with high-boiling solvents for use in the prescouring and scouring before dyeing of Ban-Lon and other textured yarn.

Coning Lubricant 2010
A new coning oil possessing antistatic and lubricating properties especially designed for oiling unsized nylon and Dacron yarns, particularly Ban-Lon after texturing.

Coning Lubricant 2112
A coning lubricant said to possess excellent antistatic and lubricating properties. Recommended for oiling false twist yarns and preshrunk hosiery welt yarns.

Dynofade N
A permanent-type atmospheric gas inhibitor used to improve the resistance of dyed fabrics to gas fading. Completely water emulsifiable and can be used directly in the dyebath.

Lubrofin 5016
A water-dispersible nonionic synthetic wax having excellent lubricating and softening properties for all types of dyed and natural yarns. It increases winding and processing efficiency.

* * *

ROHM & HAAS CO
Washington Square
Philadelphia 5, Pa

Acrysol* A-41
A 30% active aqueous solution of an acrylic resin designed specifically for warp sizing filament nylon.

Catalyst T-10
A 45% solids aqueous solution of a metal salt catalyst for use with thermosetting resins to minimize odor difficulties.

Rhonite* D-12
A 45% active nitrogenous resin for use as a crease resistant "wash-wear" finish on white cotton goods where maximum chlorine resistance is desired.

Rhonite* N-17
A 50% active nitrogenous resin for crease resistant "wash-wear" finishes on colored cotton goods with moderate chlorine resistance.

Rhoplex* HA-4
A 46% active copolymer designed to produce maximum drapeability and softness, along with maximum resistance to washing and drycleaning.

*Registered trademark

Tamol* 850
A 30% active, low-foaming dispersant for inorganic pigments.

* * *

SANDOZ, INC
61 Van Dam St
New York 13, NY

Ceranine* PN
This new cationic softener is applied from weak acidic solutions on acrylic fibers, such as Orlon 42 and 21, Acrilan 16 and Verel, to give a soft, well-lubricated finish. It is of particular interest for knitgoods. Ceranine PN is a homogeneous paste, easily diluted in lukewarm acidified water.

Cerol* Z
This water-repellent agent gives particularly stable emulsions in water at a pH lower than 5.5 It can be applied on all fibers; on synthetics the water-repellent finish has good fastness to washing and to drycleaning. Cerol Z is nonyellowing and can be applied in conjunction with resin finishes.

Leucophor* ACR
A liquid optical brightener for cellulosic fibers. It is stable to acid and heavy metal salts, and is of particular interest in resin formulations where zinc nitrate or magnesium chloride is used as catalyst. Leucophor ACR produces a neutral white with excellent aging characteristics. The product is recommended for use in combination with acid starches, polyvinyl resins and other thickeners.

Lyogen* BPN
A cationic retarding agent which controls the exhaustion of basic dyes on acrylic fibers, such as Orlon 42 and 21, Acrilan 16 and Verel. Lyogen BPN is readily soluble in water and stable in dyebaths at the boil. The dye sites on acrylic fibers are blocked and released gradually during boiling. Better levelness is obtained by the slowed-down exhaustion. Lyogen BPN is particularly effective on light and medium shades.

Printofix* D
An aqueous, anionic emulsion of a thermoplastic resin. Printofix D is used as a stiffening and filling agent on all textile fibers. It can be applied alone or in combination with other resins, softeners or other finishing agents, to obtain a full-bodied finish.

Rinfors* DC
A combination of nonflammable solvents and selected synthetic detergents, this cleaner can be blended with additional amounts of solvent. It is self emulsifying and is not affected by hard water. It removes oil, grease, waxes, graphite and soil stains, has high retention power, and prevents redeposition. Rinfors DC is quick wetting and penetrating, and is easily rinsed off.

* * *

SCHER BROTHERS
Industrial West Corner Styertowne Rd
Clifton, NJ

Defoma KB Conc
This is claimed to be an extremely effective foam-killing agent in wet processing operations. It reduces and controls foam over a sustained period of time in hard or soft water, in acid, neutral or alkaline solutions, and throughout a wide temperature range of from cold to boiling water. Defoma KB Conc is neutral and nonionic in nature and does not affect the performance of other materials which may be present, except to kill foam. It is nonsubstantive, very stable, and compatible with practically all processing compounds.

*Registered trademark

Nyloset LGF
A modified type of urea-formaldehyde syrup resin of high solids for finishing all types of lace. It is said to impart a high degree of stabilization either when applied at low concentrations to produce a soft hand or at higher concentrations for a very firm hand. It is formulated to protect sensitive colors from gas fading and is said to reduce to an absolute minimum any shade changes during curing or subsequent storage. This durable finish can be applied to levers, raschel, all-over, or band lace and on the latter type it facilitates pull-thread separation.

Nyloset TGF
A high-polymer, modified urea-formaldehyde resin which is said to impart a very firm hand to nylon tulle, malines, and fine hole netting. It eliminates the problem of windows or resin "fish eyes" and can be applied to the finest nets to give a clean, uniform finish. It is said to furnish gas fading resistance to sensitive colors and minimizes shade change during curing and subsequent storage.

Resinex DP
A double-strength monomeric urea-formaldehyde paste resin which is said to impart a high degree of crease reistance and stabilization to cotton and rayon fabrics. Being of double strength, it affords savings in storage and handling. It is readily soluble in water, compatible with most finishing agents, and cures to give a durable effect.

Schercilon
A nonionic dye solubilizing and leveling agent for all classes of dyestuffs and particularly effective for vat and naphthol colors. It is said to provide maximum stability of the coupling bath used to develop naphthols and maintain a thorough dispersion of unfixed color lake, thus reducing or eliminating crocking. It effects level dyeing of basic and sulfur dyestuffs without bronzing. Superior levelness of dyeing with combination colors having different exhaustion rates is claimed to be obtained with Schercilon because of its powerful properties of dispersion and slow, uniform release of dye molecules.

Schercobond
A textile-finishing agent which is said to impart a firm hand with a high degree of body, weight, and fullness. It does not require a cure when used alone, however it is compatible with most resins and cross links with them during the cure cycle to form a durable bond. Schercobond does not mark off even when applied in high concentrations from a three-roll quetsch. This product is very stable and its consistency does not change during storage, making it suitable for finishing yarn-dyed fabrics where viscosity control is an important factor.

Schercotarder
A cationic-type dye leveling agent said to be extremely effective when dyeing Orlon or other synthetic fibers with basic or cationic dyestuffs. It is claimed that it prevents the rapid striking of dyes when they are added initially to the dyebath and controls the exhaustion rate by permitting the dye molecules to enter the fibers slowly and evenly, resulting in uniform dyeings. This agent is not retained by the fibers after the dyeing cycle and so does not interfere with any subsequent processing.

Softoil #71

A pure-white anionic softening agent said to possess excellent resistance to high temperatures. It imparts a soft, full hand to most fabrics including tightly woven cotton and rayon bengalines. It is readily dispersed in water and can be used alone or in combination with resins. Softoil #71 imparts a high degree of needle lubrication for sewability without broken threads, is nonchlorine retentive, and shows practically no discoloration from the standard scorch test.

* * *

SCHOLLER BROTHERS, INC
Collins & Westmoreland Sts
Philadelphia 34, Pa

Creamoyl* A, Creamoyl* AC, Creamoyl* AXC

Recent additions to the family of Creamoyl softeners, a group of economical softeners for the development of improved hand in fabrics of natural and manmade fibers. Creamoyl* A, AC, AXC are particularly recommended for Orlon knit goods, and are said to impart to such fabrics a high degree of durable softness and surface lubrication.

Lubritol 15-S

A readily emulsifiable, non-oxidizing knitting oil, having antistatic properties, compounded especially for seamless knitting machines. The oil will not stain goods stored in the greige and, being readily emulsifiable, it is easily removed in scouring and dyeing operations.

Tri-A-Mine GIS

A dyeing assistant of exceptional quality which combines the high wetting-out, penetrating and leveling properties of Tri-A-Mine GI with a built-in defoamer. It is said to be effective on all fibers over a wide temperature range, highly resistant to water hardness, and exceptionally free rinsing.

Tri-A-Mine W

A dye leveling and penetrating agent for the dyeing of wool knit items for uses with all classes of wool dyestuffs. Tri-A-Mine W in addition to being a dyeing assistant also retards the felting of wool, hence goods dyed in the presence of Tri-A-Mine W have a clearer-looking appearance.

Trisco* Retarder LR

A retarder and dyeing assistant giving a high degree of leveling and penetration during the dyeing of Orlon with basic dyestuffs. It is particularly effective in protecting fabrics from heat marks and other sources of uneveness.

* * *

SEYDEL-WOOLLEY & COMPANY
748 Rice St
Atlanta 18, Ga

Seyco 6727-L

Wool fulling assistant. For use with soda ash solutions, and may be blended with solvent-type soaps or solvent blends for removal of tar and other soils. Fast even fulling, prevents entanglement of goods in fulling operations, and prevents burn and scuff marks. Aids in subsequent scouring of wool oils, etc and rinses free in the following scouring operation. Does not change shades of dyes.

Seyco 7171

The increase in use of starch cooking methods requiring handling of cold slurries has brought on the development of new and better liquid sizes. It is stated that this product does not foam or stick to the cylinders in slashing, disperses quite readily in a cold-water starch slurry, acts as softener and plasticizer for the starch film and is an excellent lubricant, thus improving weaving operations appreciably.

Seyco 23 WH

An excellent slashing additive for use in warp sizing with starches or starch-based gums. It is said to give a tougher, more flexible film, and excellent lubricity to the warp yarns. Its special feature is the addition of an optical bleaching agent which produces a lighter, brighter warp, which is particularly attractive for goods that are sold in the greige.

Seycofilm E

Synthetic fiber sizing material additive, designed for slashing of Dacron and nylon spun yarns and blends of these yarns. Used as an additive to modified starch gums to form tough, flexible film with strong adhesive properties. A liquid product easy to handle. Compatible with all types of starches and starch gums and readily desizable.

Seyco-Lube 45

This is a basic polyethylene emulsion which has been newly formulated to give extremely good stability on heat and scorch tests. This is claimed to be an excellent softener and finish for knit goods, for sewability finishes and for top finishes in resin application where white goods or high-quality materials are handled that require very good stability.

Seyco-Set 65

This is a "wash-and-wear" resin, a new type of cyclized modified urea. It is characterized by lack of color development and excellent chlorine resistance when properly cured. It is stated that it will give a very high crease angle recovery without excessive loss in tear strength, tensile or abrasion resistance. It is compatible with a wide variety of other materials which may be used for changing the finish or producing a stiff or soft hand.

Seyco-Set TZ

Reactive resin designed for crease resistance, "wash-and-wear" and dimensional stability. This is a triazone type which has built-in resistance to chlorine damage, being effective after many washings. It is a nonyellowing resin, and it is compatible with a variety of softeners or other resins and bodying agents which may be required to produce the desired hand in the fabrics.

Seycospray CO-1

A concentrated oil designed for pretreatment of fibers for processing. This is an emulsifiable spinning oil applied as a water dispersion, which, it is claimed, reduces static in processing, produces cleaner cards and adds sufficient amount of lubricant to improve processing without decreasing the breaking strength. Less fly produced in carding and spinning, and giving less waste and more weight in the yarn in cloth, from the same amount of fiber.

Seyco Sulfonic Acid Special

For those wishing to prepare their own detergents, wetting agents, and other surfactants from an alkyl aryl base, Seyco sulfonic acid special has been developed to eliminate some of the difficulties in handling of the straight sulfonic acid. It is stated that it is much easier to handle in the plant and is easier to neutralize, while giving the same very effective surface-active agents with good wetting, foaming and detergent properties.

* * *

SHAWINIGAN RESINS CORP
644 Monsanto Ave
Springfield, Mass

Resin D-243

Borax stable polyvinyl acetate-dibutyl maleate copolymer emulsion. Films cast from this product have low-temperature flexibility without need for additional plasticization. Possesses good freeze-thaw and mechanical stability. Stability on dilution with water very good. Compatibility with multivalent cations and organic solvents, such as alcohol, is said to be excellent. Suggested for use as a textile finish primarily for natural fibers. Also for other finishes which require copolymer emulsion having improved compatibility with multivalent salts or organic solvents.

Resin D-243	Characteristics
Total solids	54.5%
Emulsion viscosity (25°C. Brookfield No. 3 spindle, 30 rpm)	1000-1400 cps
pH	4.5-5.5
Density	9.03 lbs/gal
Particle size	Average about 0.5 microns. Most between 0.2 and 1.2 microns
Particle charge	Slightly anionic
Residual monomer content	Less than 0.5%

* * *

SOLUOL CHEMICAL CO, INC
Green Hill and Market Sts
Natick, R I

Antifoam-G

A low-cost silicone defoamer said to possess excellent emulsion stability designed for use in aqueous systems, being effective in very small amounts, and instantly dispersible in both hot and cold water. Solutions of Antifoam-G are extremely stable with no formation of oil or scum on the surface of the bath, even when employed at the boil. Antifoam-G may be used for control of foam in textile finishing, printing and dyeing operations, adhesive manufacture, pulp and paper manufacture coating, rubber and latex processing, leather finishing, metal working and chemical processing.

Examide*-RT

An ethylene oxide condensate of high-molecular-weight fatty alcohols recommended for use on Orlon fabrics as a scouring agent, wetting agent, and dye leveller. The product is soluble in water, having a cloud point in excess of 212°F, and is stable to acids, alkali, and most heavy metal ions.

Soluplex*-WP

A thermoplastic resin designed for use in textile finishing where maximum durability against removal by laundering is desired. Soluplex-WP may be used as a pure finish or in conjunction with thermosetting resins for increased tear strength, tensile strength, and crease

*Registered trademark

*Registered trademark

angle of recovery values with little or no loss after laundering.

Solutol-S

A durable nonionic finishing agent designed for pure or resin finishing of cotton or synthetic fabrics where the optimum in softness and smoothness is desired. When used in conjunction with thermosetting resins for crease-resistant fabrics, it is claimed to yield increased tear strength, tensile strength and crease-angle values, along with excellent sewability and abrasion resistance. Due to its nonionic nature, Solutol-S may be used in conjunction with most types of resin catalysts currently being applied in resin finishing. Solutol-S is said to meet all requirements of standard scorch and yellowing tests, and is nonchlorine retentive. Solutol-S may be employed as a pure finish or in conjunction with other finishing materials, such as thermoplastic resins, thermosetting resins, starches, gums, etc.

* * *

SOU-TEX CHEMICAL COMPANY, INC
Mount Holly, NC

Cassofix* FFL

Liquid cationic dyefixing agent that is claimed to be unexcelled for maintaining lightfastness and shade on cotton and rayon dyeings. Very effective for preventing migration and increasing washfastness of direct developed and sulfur dyeings. Completely stable with waterproofing and crease-resistant finishes. Fully effective at temperatures around 90°F. Does not affect hand of treated goods. Does not impair dischargeability of prints. It is said to impart excellent washfastness to direct turquoise dyeings.

Cassofix* FLW

Liquid cationic dyefixing agent similar to the FFL brand but possessing stronger washfastness-increasing powers. Lightfastness and shade-maintenance qualities are slightly inferior.

Cassofix* FR

Concentrated cationic water-white liquid dyefixing agent for direct colors. It is said to be very effective for preventing migration and increasing washfastness of resin-treated cotton and rayon dyeings. It is a quaternary ammonium compound that possesses antibactericidal qualities. It also increases fastness to sea water.

Cassofix* FRND

Cationic, amber-colored liquid dyefixing agent for direct colors. It is said to be very effective for preventing migration and increasing washfastness of resin-treated cotton and rayon dyeings. Has complete resin bath stability and is compatible storage stability. It is claimed to be highly efficient and inexpensive to use.

Cassopar* CM

Anionic dyeing assistant for vat dyeing. Used for the prevention of migration of finely dispersed vat-color pigments during the intermediate drying in continuous dyeing by the pad-steam/Williams unit method. In the case of fabrics of uneven density, a completely solid and uniform appearance of the goods is said to be obtained. It also is said to improve penetration of the pigment and prevent migration from the interior of the goods to the surface.

Cassopar* GL

Nonionic, nonfoaming leveling agent and dyeing assistant for vat dyestuffs. It is said to level without retarding and thereby increase the migration ability of the dyestuff. It accelerates vatting speed and allows more time for fixation. It materially increases solubility, allowing for deeper shades by vat-acid method of dyeing. It gives improved vat stability and better fastness properties to deep shades. It may be added to the blind vat with the color add to level previously dyed faulty batches. It enables consistant level dyeings to be produced.

Cassopar* SR

Cationic leveling agent for vat dyeings having affinity for the dyestuff. The retarding effect is present only at a low temperature and is compensated by raising the temperature, allowed no reduction in color value. At normal dyeing temperature, the product increases the migrating ability of the dyestuff. It is claimed to be excellent for especially difficult applications, such as beck dyeing of knitted fabrics, dyeing of mercerized yarn and rayon dyeing on skeins, beams and packages.

Fibramoll* CN

Cationic softening and lubricating agent for aftertreatment of cotton and synthetic fibers, to which it imparts a soft, flowing hand. It will not yellow whites, is nonchlorine retentive and will not change shade of dyeings. It can be used as a straight finish or combined with resins in the pad bath. It is a liquid product completely dispersible in cold water.

* * *

STEIN, HALL & CO, INC
285 Madison Ave
New York 17, N Y

Acranyl

A solution of polyacrylic acid used for sizing filament nylon warps—25% active ingredients.

Bondrez 1046-M

A white pigmented binder for producing white prints. The pigment is uniform in particle size and is thoroughly milled and dispersed in the binding medium. The product is stable to light nonscorching and nonyellowing at temperatures above 300°F even when fabrics are aftertreated with aminoplastic thermosetting resins.

Emulsivat

An agent used in the preparation of an emulsion system for printing vat-type dyestuffs.

Texpad 100

Used for sizing or coating automotive jute pads. Cold-water-soluble modified starch.

White #2

Pigmented binder used for application work in producing white overprints. It is especially satisfactory when used in printing on loom-finished acetate and Fiberglas as well as cotton and viscose fabrics. It provides excellent adhesion to the pigment of these fabrics and its nondrying properties on the screen are most useful. Another advantage is the softness of print it produces.

THE TANATEX CHEMICAL CORPORATION
Belleville Turnpike
Kearny, N J

Merse* 7F

Merse 7F is an accelerant for the alkali treatment of goods made from polyester fibers. It is stated that a fabric made of Dacron Type 56, boiled for 60 minutes in a 3% caustic soda solution, will lose 10 to 12% of its weight and acquire a soft silky hand. It is claimed that the same weight loss and soft silky hand can be obtained in 30 miuntes at 167°F by adding 3 g/l Merse 7F. In other words, the same effect is obtained in half the time, and at a much lower temperature. Merse 7F can be used on all types of equipment, including beck, jig, package and even in continuous systems.

Plexene* XX

Plexene XX is an aqueous solution of an organic sequestering agent recommended for chelating ferric iron through a pH range of 3 to 14. It is effective in chelating calcium, magnesium, copper and other di- and trivalent metals, and will selectively chelate iron in alkaline solutions before sequestering calcium and magnesium. Plexene XX is particularly useful in the dyeing operation to prevent dulling shades due to iron and copper. It is claimed that Plexene XX will prevent viscosity changes that are caused by metallic ions, and increase the stability of print pastes. When used in the scour baths, Plexene XX will peptize and disperse oil, wax, gum, heavy soil deposits, grease and carbon.

Tanapal ME

Tanapal ME is a dispersing and dye leveling agent for use with disperse dyes. Tanapal ME used at the rate of 2% on the weight of the goods eliminates uneven dyeing or shading on goods made from polyester fibers, nylon and other synthetics. Level dyeings are obtained on package machines, jigs and becks when Tanapal ME is used for pasting the disperse dye. Shading is eliminated and a better union is obtained with the use of Tanapal ME in dyeing of stretch nylon knit goods.

* * *

TEXIZE CHEMICALS, INC
PO Box 1820
Greenville, SC

Tex-Wet Polyethylene Emulsions

Tex-Wet 990—a nonionic polyethylene emulsion used in combination with other resins to improve tear strength, increase recovery and abrasion resistance; acts as a lubricant to reduce friction; acts as a fabric softener; used as and additive to warp-sizing baths. The resin needs no curing and is nonchlorine retentive.

Tex-Wet 991—a cationic polyethylene emulsion useful as a lubricant and finishing agent and fabric softener; used in combination with other resins. The resin needs no curing and is nonchlorine retentive.

Tex-Wet Special Products

Tex-Wet 995—coconut-type fatty acids used in alkyd resins; used as plasticizers and stabilizers; also used in textile softeners and wetting agents.

Tex-Wet 997—oleic acid—useful as a natural and synthetic fiber lubricant; used in textile soaps, wetting and rewet-

*Registered trademark

*Registered trademark

*Registered trademark

ting agents, rayon coning oils, and in making emulsifiers and plasticizers.

Tex-Wet 998—tall oil—used as an emulsifying agent, pigment wetting agent, plasticizer; also used in conjunction with textile oils and soaps.

Tex-Wet 999—pine oil—used in soaps and detergents; used as a wetting and emulsifying agent and as a delustering agent.

Tex-Wet Surface-Active Agents

Tex-Wet 960—an anionic, alkyl aryl sulfonate surfactant used as a detergent, wetting and scouring agent, dye leveling agent and wool carbonizing assistant.

Tex-Wet 962, Tex-Wet 963, Tex-Wet 964—60%-, 40%-, 30%-active respectively, dodecylbenzene sulfonic acids used in all phases of textile wet processing such as wetting agents, detergents, penetrants and emulsifiers. They are stable in soft and hard water as well as in dilute acid or alkaline media.

Tex-Wet 967—a compounded anionic-nonionic surfactant of special preparation with the anionic surfactant being the major component. Useful whenever nonionic and anionic surfactants are to be used together.

Tex-Wet 970—a 98%- to 100%-active nonionic, alkylaryl polyether alcohol, surfactant. Useful as a detergent; desizing assistant; emulsifying agent; wool carbonizing assistant; antistatic agent; retardant and leveling agent for direct dyes, developed dyes and acetate dyes; soaping off agent for dyed goods and prints; resin-finish penetrant; scouring agent and leveling agent.

Tex-Wet 975—a 40%-active, nonionic ethylene oxide, adduct useful as a scouring agent, leveling agent, detergent and wetting agent.

Tex-Wet 974—a 90%-active, nonionic surfactant used as a fulling assistant, penetrating and dispersing agent and a bleaching assistant.

Tex-Wet 975—a 40%-active nonionic surfactant useful as a kier boiling assistant, boiling off assistant, and soil suspending agent.

Tex-Wet 976—a compounded nonionic-anionic surfactant of special preparation with the nonionic surfactant being the major component. Useful whenever nonionic and anionic surfactants are to be used together.

Tex-Wet 978—a 98%-active, nonionic, amine condensate, surfactant useful as a detergent; wetting, emulsifying, and dispersing agent; thickener; stabilizer for foam and alkyl aryl sulfonates; dispersing agent for dyes and pigments; foaming agent.

Tex-Wet 992—a 73%- to 77%-active cationic, qua0ternary ammonium salt surfactant useful as a fabric softener, antistatic assistant, fabric sanitizer, stabilizer for starch viscosity, agent for increasing a more uniform deposition of starch onto the fabric, pigment dispersion assistant.

* * *

UNION CARBIDE CHEMICALS CO
DIV OF UNION CARBIDE CORP
30 East 42nd St
New York 17, NY

Ethylpyridylethyl Acrylate

$CH_2{:}CHOCOC_3H_1C{:}CHCH{:}C(C_2H_5)CH{:}N$. MW, 205.3; Sp G, 1.0458 at 20/20°C; Fr P, sets to a glass below −75°C; BP, at 50 mm 181.0°C, at 10 mm 149.0°C, at 1 mm 100.0°C; vapor pressure, at 20°C <0.01 mm Hg; sol % by wt in water, at 20°C, 0.35; sol of water in, at 20°C, 4.2. Chemical properties: undergoes usual reactions of acrylic esters, copolymerizes readily with vinyl acetate, acrylonitrile, vinylidene chloride, styrene, butadiene and other acrylic esters. Monomer and its polymers may be quaternized. Suggested uses: comonomer in acrylic fibers to improve dyeability, quaternaries of its polymers and copolymers for ion-exchange resins, copolymers with styrene and butadiene for tire-cord adhesives, gasketing and other pyridyl rubber applications. Introduced as: new chemical product. Availability: research quantities.

Flexol† Plasticizer EPO
Epoxidized Soybean Oil

Sp G, .9956 at 20/20°C; BP, > 150°C, (5 mm); viscosity at 100°F, 188 cks. Solubility: soluble at 25°C in acetone, carbon tetrachloride, benzene, heptane and ethyl ether. Solubility in methanol 1.7% by wt at 25°F. Chemical properties: a clear, light-colored liquid, exceptionally high oxirane oxygen content and low residual unsaturation with maximum stabilizing action and compatibility for vinyl chloride resins. Suggested uses: as an improved epoxy stabilizer with plasticizing action for the prevention of heat and light degradation of vinyl chloride resins. Introduced as: new chemical product. Availability: commercial quantities.

Flexol† Plasticizer EP-8
2-Ethylhexyl Epoxy Tallate

MW, approx 416; SpG, .9221 at 20/20° C; BP, > 215°C (5 mm); viscosity at 20° C, 33.5 cps. Solubility: soluble at 25°C, in acetone, carbon tetrachloride, benzene, methanol, heptane, and ethyl ether. Chemical properties: exceptionally high oxirane oxygen content and low iodine value with improved stabilizing action and compatibility for vinyl chloride resins. Suggested uses: low-temperature plasticizer and epoxy stabilizer for vinyl chloride resins, low plastisol viscosity and excellent plastisol viscosity stability. Introduced as: new chemical product. Availability: semicommercial quantities.

Niax† Diol PPG-3025
Polyoxy Propylene Glycol

$HO(C_3H_6O)_xH$. MW, 3,000; hydroxyl no., 38.5. Suggested uses: polyether intermediate for use as a starting molecule for urethane polymers. Used alone or in combination with Niax triols. This new intermediate offers a new dimension in formulating latitude for polyurethane foams, elastomers, and coatings. Introduced as: new chemical product. Availability: commercial quantities.

Niax† Diol PPG-4025
Polyoxy Propylene Glycol

$HO(C_3H_6O)_xH$. MW, 4,000; hydroxyl no., 30.5. Suggested uses: polyether intermediate for use as a starting molecule for urethane polymers. Used alone or in combination with Niax triols. This new intermediate offers a new dimension in formulating latitude for polyurethane foams, elastomers, and coatings. Introduced as: new chemical product. Availability: commercial quantities.

Tergitol* Nonionic E-35

Sp G, 1.031 at (20/20°C); light yellow liquid. Chemical properties: stable when spray dried on highly alkaline materials such as flake caustic or sodium metasilicate. Suggested uses: detergent for bottle washing, metal cleaning, and automatic dishwashing applications. Introduced as: new chemical product. Availability: semicommercial quantities.

Tergitol† Nonionic F-68

Sp G, 1.043 at (33/15.6°C); appearance at 25°C, white semisolid. Suggested uses: detergent for bottle washing, metal cleaning, and automatic dishwashing applications in highly caustic systems used at elevated temperatures. Introduced as: new chemical product. Availability: semicommercial quantities.

Ucar† Butylene Oxide 12
1,2-Butylene Oxide

$CH_3CH_2CHCH_2$. MW, 72.11; Sp G, 0.8312 at 20/20°C; MP, (in C), sets to a glass below −150°C; BP, (in C), 63.2°C at 760 mm; −0.7°C at 50 mm; −27.0°C at 10 mm. Purity: 97.5%. Solubility: in water, 20°C, 5.91% wt; water in, 20°C, 2.65% wt; miscible in all proportions at 25°C with acetone, benzene, ethyl ether, heptane, methanol, carbon tetrachloride. Chemical properties: undergoes usual reactions of epoxides including those with water, alcohols, thiols, ammonia, amines and acids. Suggested uses: acid-accepting stabilizer for chlorinated solvents, chlorinated paraffins, chlorinated rubber and vinyl chloride polymer and copolymer resins; modifier and chemical intermediate for polyether-type polymers, detergents, wetting agents, corrosion inhibitors, emulsifiers, demulsifiers, lubricants, oil additives, textile chemicals, etc. Introduced as: significantly new grade. Availability: commercial quantities.

Ucar† Triphenol P
1,1,3-Tris(Hydroxyphenyl)Propane

$(HOC_6H_4)C_3H_5(C_6H_4OH)_2$. A mixture of isomers of 1,1,3-tris (hydroxyphenyl) propane. The isomers differ in the positions of the hydroxyl groups on the benzene rings, some being *ortho* and others *para* to the point of attachment to the propane structure. MW, 320.37; Sp G, 25/20°C, 1.226; glasspoint, sets to glass in range of 90 to 110°C. Solubility: in water, 25°C, 0.05% by weight. Suggested use: chemical intermediate. Introduced as: new chemical product. Availability: semicommercial quantities.

Unox† Epoxide 201
3,4-Epoxy-6-methylcyclohexylmethyl-3,4-epoxy-6-methylcyclohexane carboxylate

$C_{14}H_{24}O_4$. MW, 280.35; Sp G, 1.121 at 20/20°C; BP, 215°C (5 mm); pour point 30°F; visc, 1810 cps at 25°C; RI (n_d), 1.4920 at 20°C; sol in water, 0.3% by wt at 20°C; sol of water in, 1.8% by wt at 20°C. Outstanding features: in comparison with bisphenol-glycidyl ether resins, Unox Epoxide 201 has lower viscosity, better color and color stability, and higher reactivity in acid and anhydride systems. The resulting resins feature high heat-distortion temperatures. Anhydride reactivity and ultimate resin properties of anhydride systems are generally improved by the addition of a polyol initiator. The reactivity of Unox Epoxide 201 with polyamine hardeners is much slower, so that longer pot lives are expected. Suggested uses: an epoxy resin monomer. An excellent stabilizer for vinyl chloride resins. Its reactivity suggests evaluation as a cross-linker and an acid-number reducer. Introduced as: product with new degree of availability. Availability: commercial quantities.

†Trademark

†Trademark

Unox† Epoxide 206
Vinylcyclohexene Dioxide

$O(C_2H_3)CHCH_2O$. MW, 140.18; Sp G, 1.0986 at 20/20°C; FrP, sets to glass below −55°C; BP, at 760 mm Hg, 227°C; vapor pressure at 20°C, 0.1 mm Hg; viscosity at 20°C, 7.77 cps; sol in water at 20°C, 18.3% by wt; sol of water in, at 20°C, 9.5% by wt; RI(n_d) at 20°C, 1.4787. Chemical properties: the epoxycyclohexane group is reactive under acidic conditions whereas the epoxyethyl group is reactive under basic conditions. Hydrogenation yields the cycloaliphatic diol and hydrolysis yields the tetrol. Suggested uses: as a reactive diluent for Carbide's diepoxides and bisphenol-A epichlorohydrin-derived epoxy resins; chemical intermediate; can be polymerized alone to a three-dimensional resin and also can form condensation resins with dicarboxylic acids; as a monomer for preparation of polyglycols containing unreacted epoxy groups. Introduced as: new chemical product. Availability: semicommercial quantities.

Unox† Epoxide 207
Dicyclopentadiene Dioxide

$C_{10}H_{12}O$. A white crystalline powder; MW, 164.21; density, 1.331 g/ml at 25°C; MP, 184°C; solubilities at 25°C: in water, 1.4% by wt; in acetone, 44.7% by wt; in benzene, 48.4% by wt; ethyl ether, 18.7% by wt; heptane, 1.7% by wt; in methanol, 18.6% by wt; in carbon tetrachloride 23.1% by wt. Chemical properties: epoxy groups are most reactive under acidic condition. Can be hydrolyzed under acidic conditions to a tetrol. Forms dihalohydrins with HCl and HBr or hydroxy esters with organic acids. In the presence of both HBr and organic acids, bromohydrin forms preferentially on the five-membered ring and hydroxy ester on the six-membered ring. Suggested uses: chemical intermediate for resins, plasticizers, and protective coatings. Epoxy resins with heat-distortion temperatures in the 300°C range can be made from dicyclopentadiene dioxide, anhydride hardeners, and polyol initiators. These high-heat-distortion-point resins are suggested for evaluation in grinding wheels, brake linings, and dry lay-up laminates. Introduced as: product with new degree of availability: Availability: commercial quantities.

Unox† Epoxide 269
Dipentene Dioxide
(limonene dioxide)

$C_{10}H_{18}O_2$. Colorless liquid. MW, 168.23; Sp G, 1.0326 at 20/20°C; BP, 242°C (760 mm), 148°C (50 mm), 110°C (10 mm); VP, 0.02 mm at 20°C; Fr P, sets to glass below −100°C; visc, 8.4 cps at 20°C; RI (n_d) 1.4682 at 20°C; sol in water, 3.24% by wt at 20°C; sol of water in, 3.17% by wt at 20°C. Chemical properties: both epoxy groups are highly acid reactive, the ring epoxide has the greater acid reactivity. Can be hydrolyzed under acidic conditions to the tetrol, erythrite. Forms dihalohydrins with HCl and HBr or hydroxy esters with organic acids. Suggested uses: for crosslinking polymers containing active hydrogens such as acrylic acid. As a scavenger for trace quantities of free acids and Cl in polymer solutions and oils. For evaluation as an epoxy-resin-reactive diluent and extender. Chemical intermediate for plasticizers, cyclic glycols, alkanolamine, pharmaceuticals, and odorants. Introduced as: product with new degree of availability. Availability: semicommercial quantities.

Vinylcyclohexene Monoxide
1,2-Epoxy-4-vinylcyclohexane

$C_8H_{12}O$. MW, 124.18; Sp G, 0.9598 at 20/20°C; BP, 169°C (760 mm); Fr P, sets to glass below −100°C; VP, 2.0 mm Hg; visc, 169 cps at 20°C; RI (n_d), 1.4700 at 20°C; sol in water, 0.50% by wt at 20°C; sol of water in, 0.65% by wt at 20°C. Chemical properties: the epoxy ring is opened by water, alcohols, phenols, carboxylic acids, and other reagents containing active hydrogens; hydrogenation gives ethyl cyclohexanol. Suggested uses: chemical intermediate; can be copolymerized with other epoxides to yield polyglycols having unsaturation available for further reaction; copolymerization through vinyl group gives epoxide-containing resins capable of further reaction. Introduced as: product with new degree of availability. Availability: research quantities.

* * *

VERONA DYESTUFFS
Springfield Rd
Union, NJ

Acramin Binder TR

This pigment binder is high in all-round fastness and was especially developed for pad dyeing. Acramin Binder TR is said to give excellent penetration, thus providing very good crock fastness. Appropriate adjustments have minimized the resin buildup on drying cans.

Levegal* D

A new, highly effective carrier for dyeing polyester and triacetate fibers. The outstanding features of this new carrier are said to be quick dispersibility; simplified dyeing procedure; uniform exhaust in combination shades; practically no effect on shade; superior penetration; no effect on lightfastness, improved crock-, wash-, and sublimation fastness; and nonyellowing properties.

Levapon THD

This product represents a new domestic manufacture of an auxiliary which, it is reported, has proven itself in other countries for boiling out, bleaching, and scouring of textiles because of its outstanding rewettability and very good dispersing properties. It is not sensitive to hard water, and it is said to promote penetration in bleaching, dyeing, and washing operations. It is particularly recommended for bleaching agents, such as peroxide. For further details, request Technical Data Sheet #3359.

Levegal* KN

An outstanding levelling agent for application of direct dyes. It has been found that Levegal KN is particularly valuable for the direct dyeing of spun rayon.

Phorwite* BBU Powder

A new brightening agent for cellulosic fibers which gives a neutral shade and distinguishes itself by its exceptional solubility. It can be applied by the dyeing or pad method. It has very good washfastness, thus suitable for application in discharge printing. Phorwite BBU is not sensitive to hard water; in fact, its exhaust is favored by electrolytes. However, it shows its best affinity for nylon at elevated temperatures at a pH of 3.5 and 4.5.

Phorwite* BE Powder

Represents a new brightening agent producing a neutral cast of white and possessing outstanding solubility. In addition, it is said to have excellent levelling properties which make this product of special interest for use in all applications where a short liquor ratio is involved, such as kier bleaching, package machines, beam-dyeing machines, etc.

* * *

VIKON CHEMICAL COMPANY
P O Box 277
Elon College, NC

Catalysts

Vikat VA—volatile amine hydrochloride catalyst of high effectiveness for urea resin finishes on rayon and for resin finishes on cotton.

Vikat ZA—activated amine hydrochloride catalyst for crosslinking resins on cotton.

Durable Antibacterial Agents

Vikol #250—nonionic, self-emulsifying formulation of bis(tributyl tin) oxide.

Vikol #640—nonionic, self-emulsifying formulation of bis(tributyl tin) oxide.

Polyethylene Softeners

Plion SP—nonionic polyethylene emulsion stable in the presence of metallic catalysts in acid solutions. Said to be resistant to soil pick-up in laundering.

Plion WR—polyethylene emulsion, free of wet-back properties, for use with splash-proof finishes on rayon. It resists soil pick-up on laundering.

Thermoplastic Resin Emulsions

Viplex RX—vinyl acetate hompolymer emulsion of high stability. Resistant to wet-back in water-repellent formulations.

Viplex BB—vinyl acetate copolymer emulsion for improving tear strength and producing a full hand on resin-finished fabrics. Backing for upholstery fabrics.

* * *

WARWICK CHEMICAL DIVISION
SUN CHEMICAL CORPORATION
Wood River Junction, RI

Impregnole* FH

Wax-metal salt-type, single-package water repellent which is exceptionally compatible with hand modifiers and useful on all vegetable and synthetic fibers.

Mykon* 449

Cation-active substantive softening agent.

Mykon* 451

Cation-active substantive softener of excellent solubility in resin formulations.

Mykon* 452

Nonionic synthetic wax emulsion for softening and lubrication in resin finishes.

Permafresh* 193

Urea-formaldehyde cream resin for extremely durable crease resistance and shrinkage stabilization for cotton and rayons.

Permafresh* SYN

Hand-modifying resin for crease- and shrinkage-resistant finishes on synthetics.

†Trademark

*Registered trademark

*Registered trademark

Permafresh* Catalyst LO

Slow-to-medium-speed catalyst for thermosetting resins. Improved compatibility with fluorescent brighteners.

Permafresh* Catalyst X-4

Fast acting catalyst for thermosetting resins.

Permafresh* Catalyst X-8

Curing accelerator for thermosetting resins; designed to minimize odor problems on fabrics.

* * *

WICA CHEMICALS, INC
PO Box 506
Charlotte, NC

Wicathica T

A sodium polyacrylate thickener recommended as a protective colloid, stabilizer and thickener for natural rubber, synthetic latex and other polymeric film formers. Users are said to report more efficient and economical distribution of solids in coating compounds; ease of use and application are readily apparent in product preparation.

*Registered trademark

Wicathica AC

A synthetic polymeric thickener recommended as a stabilizer and thickener for synthetic and natural latex compounds. Flow characteristics are of especial advantage in highly loaded backing compounds. Ease of addition, uniformity of film application and consistent viscosity are favorable attributes.

Wicatex Softener CA-43-B

An ethylene-oxide adduct of fatty substantive amides and plasticizers used for softening and lubricating cotton and synthetic fibers and fabrics. End characteristics are very good resistance to light and heat discoloration, minimum effect on shade change and nonyellowing of white goods. It is stated that this softener may be used with both thermosetting and thermoplastic resins to provide the highest degree of softness, lubricity and pleasing handle.

Wicatex FA-49

A sulfated fatty ester recommended as a prime penetrant in dyeing, bleaching and finishing operations. Particular advantages are derived in use as a rewetting agent in Sanforized operations and in application of low foam and deep penetration qualities in beck-, package-, beam- and continuous-dyeing procedures.

Wica Carrier DAC

An anhydrous liquid compound that provides excellent assistance in the dyeing of Dacron and other polyester fibers. Favorable factors are full, level shades with minimum use-quantities and ease of addition in the dyebath.

Wicaset S-55-E

A 55% solids polyvinyl acetate emulsion with improved nonsticking behavior allowing a substantial reduction in cleaning of hot metal sufaces and subsequent improved resistance to pick-off.

* * *

JACQUES WOLF & CO
Passaic, NJ

Polynycel A

An alkylaryl sulfonate which acts as a true leveling agent with acid and premetalized dyes on nylon 6 and 66 and for union dyeing of wool-nylon blends. It is also a high-temperature penetrant for direct dyes on heavy cottons and novelty constructions. May also be used with multifiber constructions in order to level various dyestuffs.

COLORING MATERIALS

ALLIANCE CHEMICAL CORPORATION
33 Avenue P
Newark 5, NJ

Azogen* GB, RB, B, BL

A series of inexpensive azoic printing blacks of high tinctorial value said to be characterized by good light- and washfastness, no leaching and excellent resistance to formaldehyde.

GB is the greenest shade
RB is a red shade
B is a bluish black
BL is the bluest of the series

Azogen* Printing Black RMF

A medium-price printing black especially recommended by the manufacturers for use in combinations with pigments. The shade is said to be highly resistant to changes caused by either the formaldehyde in the pigment vehicle during curing or dilution by the pigment itself (fall-ons).

Azogen* Printing Blue GNC

A concentrated printing color which has improved wash- and lightfastness properties in light blues or navy shades.

Azogen* Printing Brown GR

This full, clear, yellow brown printing color shades true when mixed with other Azogens, providing the printer with a means of obtaining a gamut of brown shades. Azogen Printing Brown GR mixed with Azogen Blue GN will produce a range of shades to mahogany; with Azogen Yellow GN to a mustard shade; with Azogen Red R to a cordovan shade. It is said to be stable in storage, fast to light (forty hours plus), and fast to washing.

*Registered trademark

* * *

AMERICAN CYANAMID COMPANY
DYES DEPARTMENT
Bound Brook, NJ

Calcofast† Neutral Yellow R
Calcofast† Neutral Bordeaux 2B
Calcofast† Neutral Scarlet 2G
Calcofast† Neutral Gray B

Neutral-dyeing metalized dyes for application to wool or nylon under neutral or slightly acid conditions. Also suitable for dyeing certain acrylic fibers.

Calcogene* Brilliant Blue 3GCF Solution
Calcogene* Navy Blue 2GSCF Solution

Sulfur-dyeing solution types of corresponding powders yielding cleaner dyeings. Especially suited to continuous- and pressure-dyeing methods.

Calcoloid* Blue GCD Double Paste

Vat blue recommended by the manufacturers for brilliance of shade, economy and outstanding fastness except to chlorine.

Calcoloid† Brown RRP Paste

A specially formulated type of CI Vat Brown 5 (CI 73410) for outstanding performance under varying aging conditions.

Calcosperse† Red B

A blue-shade disperse red especially recommended by the manufacturers for dyeing polyester fibers in cerise and pink shades.

* * *

ANSBACHER-SIEGLE CORP
Chestnut Avenue
Rosebank, SI, NY

Suntone* Clear LC

Elastomeric binder additive for water-in-oil, resin-bonded pigment printing colors. Used to impart permanent resistance to crocking while maintaining dryclean-, scrub-, and washfastness.

Suntone* Red OS3B and
Suntone* Red AS3B

Blue tone reds and pinks, said to be fast to washings and drycleaning.

Suntone* Red OS4B and
Suntone* Red AS4B

For lightfast tinting and bright self-shade pinks. Excellent resistance to solvent bleeding and to drycleaning is claimed as well as good wash and abrasion resistance. Suitable for dress goods and draperies.

Suntone* Orange OS40 and
Suntone* Orange AS40

Clean, rich-tone blending and self-shade color for general use.

Suntone* Orange OSC and
Suntone* Orange ASC

Faster-to-light full shade color said to have good washfastness, resistance to solvent bleeding, and superior dryclean-ability.

Suntone* Yellow OSFG and
Suntone* Yellow ASFG

Lightfast and drycleanable green shade said to have washfastness suitable for use on draperies and light-weight synthetics.

Suntone* Green OS2Y and
Suntone* Green AS2Y

Formulated with new, yellow-tone Fastolux Vista Green. Blends with blue or yellow are brightest obtainable. All fastness properties are said to be excellent.

Suntone* Blue OS2R

Clean violet tone having advantage of phthalocyanine fastness ratings.

†Trademark
*Registered trademark

*Registered trademark

Suntone* Violet OS4B and
Suntone* Violet AS4B

Brilliant red hue. For shading blues and carmine reds. Excellent all-around fastness ratings are claimed.

Suntone* Violet OS5B

Bluer than Violet OS4B. Same outstanding fastness characteristics.

Suntone* Gray OS3B

Produces highly desirable grays. Bright silver grays obtained by toning with blue.

Suntone* White OS4I

True white completely free of yellow cast. Highest opacity when used as a white and free of shade distortion when mixed with OS colors for pastel effects.

* * *

ARNOLD, HOFFMAN & CO INCORPORATED
55 Canal Street
Providence, RI

Ahcovat* Dark Brown DR Paste

A specialty dyestuff offering wetfastness properties which are claimed to be superior to those of conventional vat dyes appoaching this shade. Produces rich, deep brown shades which are fast and economical to attain. Possesses very good filterability, and medium substantivity and rate of reduction. Applied by Method II (IW).

Carbolan* Brilliant Blue 2GS

An acid milling dyestuff particularly suited for loose wool and slubbing. It is said to possess outstanding brightness of shade and excellent wet- and lightfastness. Very bright greenish-blue shades are produced on wool from a neutral or slightly acidic dyebath. Also recommended for direct printing of wool, dyeing and printing of nylon and silk.

Procinyl* Dyes

A completely new class of reactive disperse dyes for dyeing and printing nylon. Good coverage of irregular dyeing yarns; excellent fastness to wet and heat treatment is claimed. Procinyl dyes may be applied by jig, beck, paddle and package machines as well as by continuous dyeing methods. Dyeing commences from an acetic acid bath; fixation is achieved by addition of soda ash. Current range includes:

Procinyl Yellow GS
Procinyl Orange GS
Procinyl Blue RS
Procinyl Scarlet GS

Procion* "H" Dyes

The fiber-reactive Procion "H" dyes differ from the normal or cold-dyeing Procion dyes in their degree of reactivity and, as a class, are less suitable than the normal types for batchwise application. Of interest to the printer, they possess excellent print-paste storage stability. Both types are said to have high wetfastness and good solubility.

Procion* Orange Brown HGS

A homogeneous dye said to be of good light and wetfastness. Its properties are unique in that this cannot be duplicated by combining other dyes in this range. Of interest to the automotive and drapery trades due to its high lightfastness. For application to cellulosics by printing and by pad-steam and pad-bake techniques.

*Registered trademark

Procion* Violet H2R

Bright, bluish violet shades said to have light- and wetfastness and reasonably good fastness to sodium hypochlorite are produced by printing, and by dyeing using continuous methods. Resin aftertreatment only slightly affects lightfastness. Not dischargeable to a white.

Procion* Brilliant Blue HGR

Produces reddish blue shades on cotton and rayon when applied by printing or by continuous methods. Has fastness properties characteristic of fiber-reactive dyes.

* * *

CARBIC-HOECHST CORPORATION
451 Washington Street
New York 13, NY

Carbacryl
Red BBL
Pink BL
Blue RL
Blue FGL
Olive Green BL
Black C

Basic types for the dyeing of acrylic fibers. They produce subdued shades of superior fastness to light than older basic types.

Fast Color Salts
Fast Blue Salt OT

Produces economical navy blues continuously on Naphtol AS, AS-D, AS-RL and AS-VL preparations for work clothes and dischargeable grounds.

Fast Grey Salt B
Fast Grey Salt G

A wide variety of shades can be obtained continuously on Naphtol prepares, excellent fastness properties especially are claimed on Naphtol AS-D, AS-ITR, and AS-BG.

Fast Olive Salt BR

Yields brown and olive shades with Naphtol AS.

Naphtols
Naphtol AS-KG

For the production of dischargeable mustard, tan and olive shades of excellent all-round fastness properties.

Naphtol AS-SWLL

A Naphtol in powder form which can be dissolved in the machine without any additions other than the caustic soda used for dyeing.

Remalan Fast
Yellow EG
Yellow ERR
Orange ER
Bordeaux EB
Violet ER
Blue ERR
Grey ER
Brown EGR
Brown EBR
Brown EGG

A new group of neutral-dyeing 1:2 metal complex types. They differ from other types inasmuch as they contain a vinyl sulfon group with fiber reactivity for wool, silk and nylon. Dye level at lower pH values.

Remazol
Yellow GN
Golden Yellow Y
Brilliant Orange RR
Red 3B
Brilliant Violet 5R
Black G

*Registered trademark

Rhodazol
Turquoise GBD
Turquoise P

Fiber-reactive dyes which form on cellulosic fibers an irreversible ether linkage through a reactive vinyl sulfon group. All are dischargeable. They can be printed, dyed continuously, as well as on package machines, on skeins or on the jig. They can also be dyed on wool, nylon, silk and some acrylic fibers.

* * *

CIBA COMPANY, INC
Fair Lawn, NJ

Cibacete* Turquoise Blue 4G

Yields greener shades than Cibacete Turquoise Blue 2G on acetate, nylon, Orlon, Arnel and Acrilan. Cibacete Turquoise Blue 4G possesses the same fastness properties as Cibacete Turquoise Blue 2G, ie, lightfastness on Orlon and Arnel is very good. It can be used as a printing and as a dyeing type with good dispersion and no sublimation.

Cibacrolan Blue 8G

A wool dye said to be of great brilliance and high fastness. Cibacrolan Blue 8G is suitable for dyeing wool at all stages of processing. It is reported to be fast to light, washing, rubbing, and to be stable to acid chlorination. It is especially recommended for popular, fashionable shades and combines excellent penetration with a short dyeing time. Cibacrolan Blue 8G can be combined with Cibacron dyes.

Cibacrolan Green VM

A wool dye said to be of great brilliance and high fastness. Cibacrolan Green VM is suitable for dyeing wool at all stages of processing. It is reported to be fast to light, washing, rubbing and is stable to acid chlorination. It is especially recommended for popular, fashionable shades and combines excellent penetration with a short dyeing time. Cibacrolan Green VM can be combined with Cibacron dyes.

Cibacron* Brilliant Blue BR

Reactive, bright, reddish blue dye for dyeing and printing cellulosic fibers and wool. Cibacron Brilliant Blue BR is said to be fast to light, washing at the boil and peroxide bleaching. It is suitable for goods to be applied by pad-dyeing or exhaust methods—as a self shade or in compound shades.

Cibacron* Brown 3GR

An intense, yellowish reactive dye which is said to be fast to light, washing at the boil and to be suitable for goods to be resin treated, rubberized or coated with PVC. Cibacron Brown 3GR can be printed on natural and regenerated cellulose fibers, wool and silk. It is particularly suitable as a component for dark brown, olive and khaki shades. It can be pad-dyed or exhausted on cellulosic fibers and is dischargeable to a white in pale and medium-depth shades.

Cibacron* Violet 2R

A homogeneous reactive dye for printing cellulosic fibers, wool and silk. Cibacron Violet 2R is said to be fast to light and washing at the boil and is suitable for use in compound shades. It is not suitable for colored resists under Aniline Black pad-dyeings.

*Registered trademark

Cibalan* Bordeaux EL

A neutral-dyeing bordeaux noted for its excellent levelling on wool, polyamide fibers and silk at all stages of manufacture, and vigoureux and direct printing. Cibalan Bordeaux EL possesses fastness properties of the same standard as the other Cibalans—in particular it is said to have very high fastness to light, even when applied in low concentrations. It can, therefore, not only be used as a self shade, but also as a shading component in pale compound dyeings.

Cibalan* Brilliant Scarlet RL

Neutral-dyeing bright yellowish red used for dyeing wool, polyamide fibers and silk at all stages of manufacture. Cibalan Brilliant Scarlet RL is very level-dyeing and possesses good solubility. It is applied as a self color for fast, bright scarlets or for brightening Cibalan dyeings. It gives good solidity on wool/polyamide fiber unions and is suitable for vigoureux and direct printing.

Cibalan* Olive 3BL Conc

Neutral-dyeing, bluish olive used for dyeing loose wool, slubbing, yarn, wool pieces, nylon and silk. Cibalan Olive 3BL Conc is said to possess excellent fastness to light and very good all-round fastness properties. It is stated that it has very good fastness to wet processing and is highly recommended for use as the base color for dyeing military shades.

Cibanone* Black 2BD Double Paste

Microfined vat with the same excellent fastness properties as Cibanone Black 2B Double Paste. Cibanone Black 2BD Double Paste has been especially developed for its greenish-grey shade when oxidized with conventional oxidizers.

Cibanone* Black 2BN Double Paste

Microfined vat with the same excellent fastness properties as Cibanone Black 2B Double Paste. Cibanone Black 2BN Double Paste has been especially developed for the cotton/nylon hosiery trade and exhibits especially good union dyeing properties.

Cibanone* Black DPN Double Paste

A very economical vat black said to possess good all-round vat fastness. Cibanone Black DPN Double Paste has superior pigment filtering properties; yields dull shades, thus eliminating shading with expensive oranges; and builds up well to heavy depths.

Cibanone* Brown BF Double Paste

Microfined, rich, chocolate brown vat in heavy depths. Cibanone Brown BF Double Paste can be applied by the various conventional vat-dye application methods now in general use, either reduced or in pigment form. In combination with other suitable Cibanone, Microfined dyes, it is an excellent base color for dyeing a wide range of beiges, tans and deep browns. Its good tinctorial strength and build-up, together with its economical price, make it an especially good money value color for dyeing dark-brown shades.

Cibanone* Grey BG Paste

Microfined bright bluish-grey vat highly recommended by the manufacturers for package and beam dyeing. Cibanone Grey BG Paste can be used in combination with other suitable Cibanone, Microfined dyes for dyeing a wide range of mode shades. It is stated that its good all-round fastness and very good fastness to light, peroxide, and chlorine make it useful for dyeing yarns for colored woven goods, shirtings, furnishings, and materials required to withstand weathering. Cibanone Grey BG Paste treated with Lyofix PR is recommended for use in the production of so-called "minimum-care" fabrics. Dyeings, so treated, show practically no shade change and maintain their fastness to light.

Cibanone* Olive 2BD Double Paste

Microfined, homogeneous, duller olive vat than Cibanone Olive 2B Double Paste. Cibanone 2BD Double Paste is said to be an excellent money-value color.

Cibanone* Red Brown RB Double Paste

Microfined, copper-tone, reddish-brown vat. In the lighter depths, Cibanone Red Brown RB Double Paste dyes a variety of mode shades in the "old rose" range without any, or with only a minimum of, shading with red. In heavy depths it is an excellent base color for dyeing reddish-brown mode shades in the "mahogany" range. It is said to be an excellent money-value color.

Deorlene* Brilliant Red 4G

A truly brilliant red for acrylic fibers. Deorlene Brilliant Red 4G is said to be distinguished by excellent fastness to light and washing, along with minimum staining of wool and cellulosic fibers.

Neolan* Leather Brown G

Homogeneous pre-metallized acid dye giving medium to light greenish-brown shades which are popular on all types of leather. Neolan Leather Brown G may be used in conjunction with other Neolan and Fast Leather dyes for both grain and suede leathers. It is sensitive to strong acids, but is unaffected by formic acid and weak alkali. It is said to be an excellent level-dyeing product.

Neonyl* Black JT

A neutral-dyeing dye for nylon, yielding jetter shade of black than Neonyl Black CW. A combination of both of these colors can be used where the Neonyl Black CW is too blue and the Neonyl Black JT is too jet.

* * *

E I DU PONT DE NEMOURS & CO, INC
ORGANIC CHEMICALS DEPT
DYES AND CHEMICALS DIV
Wilmington, Del

Acid Dyes

"Pontacyl"* Scarlet RR

"Pontacyl" Scarlet RR is bright scarlet acid dye recommended for producing cocheal scarlets and in combination for full, bright reds on the various forms of wool. It is also of interest in paper, leather and other fields where bright deep shades of scarlet are required. "Pontacyl" Scarlet RR has good solubility and shows good affinity when applied with 5% anhydrous sodium sulfate and 3% sulfuric acid. The dye levels best in full shades and performs well when used as a base color in combinations. It is not recommended as a shading color.

Cationic Dyes

"Sevron"* Yellow GL

"Sevron" Yellow GL is a new cationic dye especially recommended for application to "Dacron"* Type 64 polyester fiber and is also of value on "Orlon"* acrylic fiber. It produces true yellow shades, has 40 hours lightfastness and is negligibly affected by wet processing tests. "Sevron" Yellow GL has rather low tinctorial value, which will limit its use to pastel shades. It is stated that its most important use will be on "Dacron" Type 64 because of its lightfastness superiority in mixed shades over other cationic yellows. This dye cannot be stripped with hypochlorite or sodium chlorite bleaches.

"Sevron"* Orange CL

"Sevron" Orange CL exhibits a yellow, bright shade of orange on acrylic fibers and has 16 hours lightfastness. The dye can be applied over the pH range of 4.5 to 8.0 as a self shade or as a shading element in making tans, browns, grays and particularly blacks. "Sevron" Orange CL has good fastness to carbonizing, changing slightly redder and duller in shade on neutralization with ammonia at 120°F. This property, along with good fastness to wet processing, makes the dye attractive for dyeing the "Orlon" in blends with wool. "Sevron" Orange CL has good solubility, builds up well and has a half-dyeing time of 32 minutes. This dye should not be applied from strongly acidic dyebaths, below pH 4.5, since redder and weaker dyeings will result. "Sevron" Orange CL can be stripped from "Orlon" to a slight to noticeable orange tint by the sodium hypochlorite method and to a pastel tan by the sodium chlorite method. "Sevron" Orange CL is suitable for use on "Dacron"* Type 64 polyester fiber and on acrylic or modified acrylic fibers but is not recommended for use on acetate, nylon or silk.

"Sevron"* Blue 7G

"Sevron" Blue 7G is a specialty dye with moderate lightfastness and recommended for producing a range of turquoise and teal blue shades on "Orlon" acrylic fiber. It should be applied on the acid side, although it has very good shade stability in the pH range of 3 to 8. "Sevron" Blue 7G builds up well to full, bright, greenish-blue shades and, since it is a medium to slow exhausting dye, has a time of half dyeing of 28 minutes. "Sevron" Blue 7G can be stripped to a pale tint with sodium chlorite. When the dye is stripped with sodium hypochlorite and acid, a noticeable yellow stain persists.

"Sevron"* Blue NF

"Sevron" Blue NF offers attractive bright blue shades on acrylic and modified acrylic fibers and has good fastness to light and wet processing, characteristic of the "Sevron" range. The dye is recommended for use in the production of tan, brown, gray, charcoal, bright blue and navy shades on "Orlon"* as well as for use on blends of "Orlon" and wool where it shows only slight staining of the wool. It is also suitable for printing 100% "Orlon" or blends of "Orlon" and wool. "Sevron" Blue NF builds up well and has good dyebath stability over the pH range of 4.0 to 7.0. Strongly acidic dyebaths cause the shade of the product

*Registered trademark

*Registered trademark

*Registered trademark

to change slightly redder while a pH above 7.0 will cause weaker dyeings. A 1.0% dyeing of "Sevron" Blue NF on "Orlon" at 206°F shows a half-dyeing time of 23 minutes. Dyeings of "Sevron" Blue NF on "Orlon" can be stripped to a white by treatment in a hot, acidified solution of sodium hypochlorite and to a light greenish-blue by treatment in a hot acidified solution of sodium chlorite.

Disperse Dyes

"Latyl"* Yellow RC

"Latyl" Yellow RC is an economical dye for "Dacron"* polyester fiber and has good lightfastness which is unaffected by residual orthophenylphenol carrier. It is said to exhibit good fastness to wet-processing tests and to show a negligible shade change when subjected to various sublimation tests. However, some staining of adjacent fibers occurs depending on severity of the test and depth of shade. "Latyl" Yellow RC has good build-up properties, is stable to high temperatures and can be applied by the Thermosol procedure. The product stains wool considerably when dyeing blends of "Dacron" and wool although the degree of staining is such that the dye could be used in these blends.

"Latyl" Yellow RC can be used on acetate and nylon as well as on a number of other synthetic fibers now being marketed.

"Latyl"* Orange NST

"Latyl" Orange NST produces bright, orange shades on "Dacron"* polyester fiber and is said to exhibit good fastness to light, wet processing and sublimation. The product is recommended for use in the production of tans, grays, browns and navies on fabrics of 100% "Dacron" or on blends of "Dacron" and cellulosics. "Latyl" Orange NST can be applied from aqueous carrier baths at 208° to 212°F, unde pressure at 250°F, without a carrier or by the Thermosol process. Dyeings made with orthophenylphenol carrier present should be heat treated to sublime residual carrier so that maximum lightfastness can be obtained. It is stated that this new dye disperses readily, has good dyebath stability, does not tar, has good level-dyeing properties and builds up on tone to heavy shades. "Latyl" Orange NST is of interest for use on acetate, nylon, triacetate, as well as other synthetic fibers, because of its satisfactory buildup and fastness properties.

"Latyl"* Brown MS

"Latyl" Brown MS is characterized by its rich, "terra cotta" shade and good fastness to light and wet processing on "Dacron"* polyester fiber. Because of its redness of shade, it is of interest as a replacement for orange dyes in the formulation of tans through dark browns. "Latyl" Brown MS has excellent buildup and good stability when applied from aqueous carrier baths or from pressure systems without a carrier. When orthophenylphenol-type carriers are used in the application of this dye, the dyeings should be heat treated so that optimum lightfastness can be obtained. "Latyl" Brown MS stains wool considerably when dyeing blends of "Dacron"* and wool, although the stain is on tone. "Latyl"* Brown MS has good fastness to sublimation. It is said to be an excellent color for application to blends of 65/35 "Dacron" and cotton since it does not change shade when subjected to alkaline dyebath conditions required for dyeing the cotton with vat dyes. Also, on such a blend, the dye shows a negligible shade change from a "Zelan"* durable water-repellent treatment. Good fastness to crocking and washing is also said to be apparent after such a treatment. "Latyl" Brown MS is of interest for use on a number of synthetic fibers and is also a good printing color for "Dacron" Type 62.

"Latyl"* Bordeaux B

"Latyl" Bordeaux B produces bright red-violet shades on "Dacron" polyester fiber and other synthetic fibers and is said to have outstanding fastness to washing and sublimation. This product has good fastness to light when dyeings are properly heat treated to remove residual carriers or when carriers which do not affect lightfastness are used. "Latyl" Bordeaux B builds up well, retains its brightness of shade and should find wide use as a nonsubliming reddening element in the production of many shades. "Latyl" Bordeaux B is a good level dyeing color and can be applied to "Dacron" by aqueous carrier procedures by high-temperature pressure methods or by Thermosol application. Latyl Bordeaux B has good fastness to light on acetate and nylon and shows lightfastness in the range of 20 to 160 hours on other currently available fibers.

"Latyl"* Blue BCN

"Latyl" Blue BCN yields bright, neutral blue shades, is said to have good fastness properties and to be an outstanding level-dyeing color. It is one of the most economical disperse blues available for use as a base in making navy and black shades on "Dacron"* polyester fiber. It is also useful in the production of light to medium shades of tan, gray, blue, etc. "Latyl" Blue BCN builds up well and can be applied by any of the procedures recommended for dyeing "Dacron". It has good fastness to sublimation, showing only a trace shade change and slight staining of acetate and "Dacron" when applied in progressive strength dyeings up to 6.0%. "Latyl" Blue BCN stains wool considerably when dyeing blends of "Dacron" and wool, although the stain is on tone. It is also of interest on blends of "Dacron" and cotton but should be used only in light synthetic fibers, with the color value dependent upon the type of fiber.

"Latyl"* Blue LS

"Latyl" Blue LS gives a green and dull shade of blue on "Dacron" polyester fiber and is said to exhibit exceptionally good all-round fastness. Lightfastness of the dye falls in the 80 to 160-hour range when dyeings have been poperly heat treated to remove residual carrier. It also exhibits outstanding fastness to sublimitation. "Latyl" Blue LS shows a green and dull shade change in incandescent light along with good buildup. It is suggested for use in the production of browns, charcoals and navies where it will maintain its characteristically good fastness and eliminate the need for expensive shading elements normally employed to counteract red shade change of base blues under incandescent light.

"Latyl"* Blue 2R

"Latyl" Blue 2R produces a greener shade of blue on "Dacron"* polyester fiber and shows considerably less red shade change in incandescent light than its predecessor, "Latyl"* Blue 4R. This new product will require less shading to correct red shade change in incandescent light, and consequently, will be more economical for use as a base in producing navy, charcoal, deep brown and black shades. "Latyl" Blue 2R can be applied to "Dacron" by the normal procedures used for dyeing the fiber. It dyes levelly, has good fastness to sublimation and shows wool staining similar to "Latyl" Blue 4R when used in dyeing blends of "Dacron" and wool. Lightfastness of the dye is improved by heat treating after dyeing to sublime residual carrier. "Latyl" Blue 2R is also of value for use on "Dacron" Type 64 and in light to medium shades on cellulose triacetate. With the latter, an inhibitor should be included in the dyebath.

Vat Dyes

"Ponsol"* Brilliant Scarlet RK Double Paste

"Ponsol" Brilliant Scarlet RK Double Paste is recommended for use in package dyeing bright scarlet shades on cotton and rayon. It is said to exhibit outstanding fastness to light as well as good fastness to chlorine and peroxide bleaching. This product requires thorough soaping (at least 5 minutes) to develop its true scarlet shade and for this reason is not suggested for application by continuous methods where prolonged soaping would be inconvenient. "Ponsol" Brilliant Scarlet RG Double Paste gives the best tinctorial value when reduced at 20°F with 5% of caustic soda and 10% of Du Pont Hydrosulfite Conc, and dyed at 80°F with 50% common salt present. It is an orange in shade before soaping, and changes bluer and brighter with soaping. Excellent wetfastness is said to result when the dye is soaped for 5 minutes.

"Ponsol"* Blue GDR Double Paste

"Ponsol" Blue GDR Double Paste is redder in shade than "Ponsol" Blue GD Double Paste, but equal in application and fastness properties. It is said to exhibit a high degree of lightfastness and has good resistance to washing, peroxide bleaching, perspiration and crocking. The product can be applied to all forms of cotton and rayon by the procedures normally employed for these fibers. "Ponsol" Blue GDR Double Paste is reduced and dyed at 120°F in circulating machines using one oz/gal each of caustic soda and Du Pont Hydrosulfite Conc per gallon. Concentrations of these chemicals for other uses will depend on the type of application.

"Sulfanthrene"* Navy Blue MR Double Paste

This thioindigoid derivative vat dye is primarily recommended as a printing color for the economical production of deep, reddish navy blue shades on both cotton and rayon. One of its most outstanding uses will be as a base for formulating economical blacks. "Sulfanthrene" Navy Blue MR Double Paste is said to exhibit good fastness to light on prints and dyeings with a monotone fade in each case. It also is said to have good fastness to washing, water spotting, drycleaning, hot moist pressing and crocking but goes considerably weaker with chlorine and slightly weaker with peroxide bleaching. "Sulfanthrene" Navy Blue MR Double Paste can be applied to all forms of cotton and rayon in all types of equipment. It is applicable by reduced dyeing methods or as a dispersion followed by reduction. It exhausts well

*Registered trademark

*Registered trademark

*Registered trademark

and is not sensitive to normal variations in concentrations of caustic and hydrosulfite. Best results are obtained when the dye is applied with 5% of caustic soda and 10% of Du Pont Hydrosulfite Conc, reducing at 160°F and dyeing at 140°F. "Sulfanthrene" Navy Blue MR Double Paste can be printed by standard procedures customarily recommended for vat dyes. The dye performs exceptionally well in colored discharge work on cotton and rayon.

Pigment Colors
"Monastral"* Red B Paste
"Monastral" Violet R Paste

These two new lighfast pigment colors are highly dispersible products and are companion or shading colors for "Monastral" Fast Blue BWD. It is stated that, because of their very good lightfastness, they will be of interest for fine papers and particularly for paper-base laminated plastics. Both of these colors are useful in coating formulations.

"Monastral"* Fast Blue RDC Paste

"Monastral" Fast Blue RDC is a highly dispersed pigment color said to possess excellent lightfastness. It is redder in shade than "Monastral" Fast Blue BFR Paste and is particularly recommended as a tinting color for whites in combination with "Lithosol"* Fast Violet 4RN Paste. "Monastral" Fast Blue RDC Paste should be especially suitable for coating work because of its considerably reduced particle size. It should not cause specking in either beater dyeing or coatings. The color is also recommended for use in continuous coloring systems because of its excellent physical form; it can be diluted with water and metered directly into the pulp line.

Spirit Soluble Dye
"Luxol"* Fast Black FN

"Luxol" Fast Black FN is primarily recommended for use in ball point pen inks. It is said to have good solubility, low insoluble content and excellent lightfastness. A satisfactory ink with lightfastness in excess of 100 hours can be formulated using 50% of "Luxol" Fast Black FN and 50% of propylene glycol. This dye is also of interest as a self shade on aluminum foil where it is said to exhibit excellent lightfastness in vinyl coatings and fair to good lightfastness in nitrocellulose coatings.

* * *

EASTMAN CHEMICAL PRODUCTS, INC
SUBSIDARY OF EASTMAN KODAK CO
Kingsport, Tennessee

Eastman Black T

A neutral shade of black suitable for jig or box dyeing, Eastman Black T requires only acidification in the dyebath for development at the completion of the dyeing cycle. Thus the dyeing time is said to be reduced considerably compared with that required with other developed dyes. Eastman Black T is similar to Eastman Black SN with respect to fastness properties, meeting the general commercial requirements for fastness and offering exceptional resistance to sublimation and crocking.

Eastman Fast Yellow 8G-GLF

A brilliant greenish yellow said to possess excellent fastness to light, washing, perspiration, gas fading and sublimation when dyed on acetate fibers. Eastman Fast Yellow 8G-GLF also is said to show very good fastness to light, washing, perspiration and sublimation on polyester fibers.

*Registered trademark

Eastman Polyester Brilliant Orange 2RL

Produces a red shade of orange when dyed on polyester fibers. Eastman Polyester Brilliant Orange 2RL is claimed to have outstanding fastness to light, washing, sublimation, crocking and perspiration. It is an economical dye which should find use in producing dark browns, greens and charcoal shades for men's wear.

Eastman Polyester Violet R

A very bright blue shade of violet developed to produce the shades required for bright violets, royal blues, and rubine shades in women's wear. Eastman Polyester Violet R is claimed to have very good light, washing, sublimation and crocking fastness, and it builds-up very well at temperatures below the boil.

Eastman Polyester Blue GB

A bright green shade of blue which flares very green under artificial light. Eastman Polyester Blue GB is reported to have very good fastness to light, washing, sublimation, perspiration and crocking. This economical dye can be used to reduce the red flare of a combination shade under artificial light.

* * *

FRANCOLOR INC
DIVISION OF COMPAGNIE FRANCAISE
DES MATIERES COLORANTES
Rhode Island Hospital Trust Bldg
Woonsocket, RI

Esterophile* Colors
Light Yellow 2RL
Light Yellow 3RLL
Light Red RBLL
Light Blue BJLL Extra

A new group of dispersed dyestuffs for the dyeing of polyester fibers, reportedly characterized by the following properties: Extreme brightness (Esterophile Light Blue BJLL is said to be brighter than any other blue for polyester now available); excellent fastness to light, even in pale shades, alone or in mixtures; excellent fastness to wet treatment (washing, perspiration, etc); outstanding fastness to sublimation and to pleating; excellent fastness to crocking; and excellent fastness to drycleaning (trichlorethylene). This line of colors is claimed to be very homogeneous in its properties. All colors reportedly have a fastness to light of 6 minimum in medium shades and fastness to the other tests range from 4-5 to 5). Although it is recommended by Francolor that the Esterophiles be applied under pressure, where best yield and fastness are obtained, it is possible to apply them with a carrier at the boil.

For further information, write for Bulletin TDS-118.

* * *

GEIGY DYESTUFFS
DIVISION OF GEIGY CHEMICAL CORPORATION
Saw Mill River Road
Ardsley, NY

Cuprophenyl* Red GL
Cuprophenyl* Black 2GL 200%

Cuprophenyl Red GL produces a more pleasing and useful shade of red with typical Cuprophenyl fastness properties. This Red GL is yellowish and bright in shade, stable to temperature variations in the after-treating bath (copper sulfate and acetic acid), has good solubility and is adaptable for use in combinations.

Cuprophenyl Black 2GL 200% was designed to have good acetate reserve qualities and produce bloomy blacks on both cotton and rayon. It is greener and bloomier in shade than Cuprophenyl Black GL and has the dyeing characteristics and fastness properties of Cuprophenyl Black RL.

Diazophenyl* Fast Scarlet 2GL
Diazophenyl* Fast Scarlet RL

These products offer a red shade scarlet and a blue shade scarlet with almost identical working properties. It is stated that both can be considered to have good lightfastness in the field of developed colors and offer good wetfastness, excellent dischargeability and excellent acetate rayon reserve. With creaseproof finishes, the lightfastness of these new developed scarlets is further improved. These characteristics indicate the use of these products for cellulosic fibers in the knit goods, dress goods and synthetic blend fields.

Gycolan* Brilliant Pink 3B
Gycolan* Black WG Conc

Gycolan Brilliant Pink 3B is an acid-dyeing premetalized color that produces brilliant bluish shades of pink on wool and polyamide fibers. It is suitable for making bright pink shades when used alone or in combinations to obtain peppy violets and navies when these shades are desired. This color has good exhaustion and levelling properties when applied to wool from a strong acid bath and to polyamide fiber with formic acid. The fastness properties of Gycolan Brilliant Pink 3B are said to be equal to those established for the acid-dyeing premetallized class of dyestuffs.

Black WG Conc extends Geigy's range of acid-dyeing premetalized colors for wool and polyamide fibers to include a greener cast brand of the Black WAL type. Except for its greener shade, this new product is equal in fastness and general working properties to the popular WAL type.

Irgalan* Yellow 2GL Extra
Irgalan* Blue FGL
Irgalan* Brown GRL

Irgalan Yellow 2GL Extra adds greenness of shade to Geigy's line of neutral-dyeing premetalized dyestuffs for wools and nylon. This new product possesses all the desirable application and fastness properties of this class of dyes and is particularly suited for use on automotive fabrics containing nylon because of its high lightfastness on this fiber.

Blue FGL is an important addition to the Irgalan range of neutral-dyeing premetalized colors because of its bright, green shade of blue. It is stated that this new product has very good wetfastness properties, high lightfastness, holds its shade well in artificial light and exhibits minimum shade change from acid chlorination shrinkproofing treatments. It is recommended for general use on wool, nylon or silk.

Brown GRL qualifies as a utility color for general use on wool, nylon or silk. This patented product possesses a very pleasing shade of brown and is suitable as a base for a wide variety of browns. It is said to have excellent lightfastness even in pale shades on nylon, presents processing economies through short dyeing cycles, has good solubility and exhibits a desirable reddish and lively cast in artificial light.

Irganol* Yellow 4GLS

This new color is designed to complement the neutral-drawing premetalized Irgalan series by providing similar fastness in brighter hues. Irganol Yellow 4GLS is said to be notable for its bright shade, good solubility and very good light- and wetfastness on wool and nylon.

*Registered trademark

Setacyl* Orange P-RFL

This disperse dyestuff produces useful, full-bodied shades of orange on polyester fibers and provides an economical component with good fastness and working properties for use in dark combination shades of navy, black and brown. It is stated that Setacyl Orange P-RFL dyes levelly, shows little tendency to sublime, is satisfactory for high-temperature application and has excellent fastness to light and washing. In addition to its usefulness on polyester fibers, this product has value for the dyeing of acetate and many of the newer chemical fibers.

Solophenyl* Orange ARL
Solophenyl* Blue ABL
Solophenyl* Green A2GL

Solophenyl Orange ARL is said to offer outstanding lightfastness in the Direct Orange field. It also promises good solubility, excellent discharge properties, level-dyeing characteristics and is free of copper and manganese. Its lightfastness and shade are virtually unaffected by urea-formaldehyde resin finishes. Aftertreatments with urea-formaldehyde resin either alone or in combination with Gycofix* 67 improve the washfastness properties of this new color.

Blue ABL adds a red-cast blue dyestuff of good working and fastness properties to the range of lightfast Solophenyl colors for cellulosic fibers. It is stated that it has good to very good fastness to light on cotton and rayon, excellent value, good build up, reserves acetate and nylon (the latter with the aid of Erional* NW) and is of interest for spun rayon finishing with urea-formaldehyde resins. From the viewpoint of economy, fastness and shade, this product is claimed to be an outstanding dyestuff for general use in the dyeing of cotton and rayon. Fields of application include outerwear, upholstery, floor coverings and dress goods.

Solophenyl Green A2GL represents a major contribution in the field of fast-to-light direct dyes for spun rayon and cotton. Its high lightfastness, when no finish is used, actually improves with urea-formaldehyde resin. It is stated that this product is very fast to light on cotton, does not stain acetate, reserves nylon with the aid of Erional* NW, dyes levelly, is unaffected by water spotting and has very good solubility. It is recommended for use on spun rayon apparel fabrics, upholstery and automobile fabrics, and other materials that require a high standard of quality.

Tinon* Navy Blue 2B Double Paste
Tinon* Black 2BN Double Paste
Tinon* Black DPN Double Paste

Tinon Navy Blue 2B Double Paste produces economical navy blue shades which are claimed to possess characteristic vat colorfastness. It has good working properties, is suitable for high-temperature application, can be used as a bluing element in combination shades, withstands "wash-and-wear" resin finishes and shows less shade change in artificial light than other vat navy blues. It is especially useful for dyeing washable goods, wearing apparel and drapery, and furnishing fabrics.

Tinon Black 2BN Double Paste has been developed especially to give good coverage on nylon in material composed of cotton and nylon. It is particularly designed for dyeing mercerized ribbed hose with nylon-reinforced heel and toe to uniform black shades. With the exception of good nylon coverage, this new product is similar in working and fastness properties to the established Tinon Black 2B Double Paste type.

Tinon Black DPN Double Paste produces deep, green-shade blacks on cotton or rayon. It is stated that it is economical and has good over-all working and fastness properties making it ideal for wash fabrics, wearing apparel and household furnishings. It can be used as a self shade, for shading navies and dark browns, or as a base for charcoal shades.

Tinopal* RPA

This product is the latest addition to Geigy's line of Tinopal fluorescent whiteners. It was developed primarily for use on nylon. It yields a slightly redder shade of white with higher fastness to light than other Tinopals for nylon, produces whites of good fastness to light and washing on wool, and gives good unions on blends of cellulosic fibers with wool, acetate or nylon. In all cases, application from an acid bath is required for good exhaustion.

* * *

GENERAL DYESTUFF COMPANY
A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION
435 Hudson Street, New York 14, NY

Algol* Bordeaux RR Extra Double Paste Fine (printing-paste brand)
Algol Bordeaux RR Infra Double Paste (dyeing-paste brand)
Algol Bordeaux RRP Powder (dispersible-powder-dyeing brand)

This new vat dyestuff is extensively used for dyeing low-cost reddish bordeaux on cotton and rayons. It is stated that the product has excellent fastness to light, particularly in full-depth shades, and very good to excellent fastness to chlorine and peroxide bleach. In addition to being useful as a self-shade dyestuff, this product serves well as an excellent ground for a broad range of extremely economical shades. It is applicable on yarns and piece goods and can be applied on most types of vat-dyeing equipment. Drapery and upholstery fabrics that must have excellent fastness to light are said to be ideal end uses for this product.

Benzo Black* BAW

This is an economical, strong, direct dyestuff for bluish blacks on cotton or rayon. In mixtures of acetate and rayon or cotton, it leaves the acetate white.

Blancophor* ES-31 (liquid)
Blancophor ES-73 (powder)

This is a new fluorescent brightener for cellulosic fibers. It is primarily designed for beater-coloring of paper pulp where subsequent wire pH is below 5.0. Because of its superior stability to precipitation by alum at low pH (5.0-4.2), this product maintains its brightening efficiency extremely well during the manufacture of hard-sized or high-wet-strength sheets.

Crystal Violet Liquid
Ethyl Violet GG Liquid

These are free-flowing, pourable solutions of the long-known powder brands. They are offered for convenience and ease of handling.

Fastusol* Yellow RG
Fastusol Yellow RP

These new direct dyes are bleachable, fast-to-light yellows of excellent economy, intended chiefly for the coloring of paper. They are very similar to one another in dyeing and fastness properties. However, in shade, Fastusol Yellow RG is appreciably greener and brighter than Fastusol Yellow RP.

Fastusol* Blue 8GLP

This is a strong, inexpensive bright blue for cotton, rayon, and paper. In dyeing, it is said to show excellent fastness to resin finishing and leave acetate effects white. Fast-to-light bleachable bright blues and greens can be produced on paper with this product at low cost.

Genacron* Yellow 3GL
Genacron Orange RL
Genacron Red BBL
Genacron Blue 3R

These disperse dyes are new additions to General Dyestuff Company's range of dyes developed primarily for application to polyester fibers. They all are said to exhibit very good fastness to light and washing, and good build-up. They are suitable for 100% polyester fibers and mixtures of polyester fiber and cotton, rayon, or wool. Because of their excellent dispersion, these Genacron dyes are suitable for dyeing with a carrier at the boil or without a carrier at 250°F under pressure. Genacron Yellow 3GL yields strong, lemon-yellow shades said to possess excellent fastness to light, washing, and perspiration. It can be used as a self shade or in combination for greys, tans, etc. It is extremely useful for dyeing blends containing polyester fiber as piece goods, yarns, or stock.

Genacron Orange RL dyes very strongly tinctorial shades said to be of excellent fastness to light, washing, and perspiration and very good fastness to sublimation. It is to be used primarily in combination shades with Genacron Blue BL and Genacron Red B for a wide variety of fast browns, greys, blues, and charcoals. It can be applied by all methods of dyeing.

Genacron Red BBL gives bright, bluish-red shades reported to have very good fastness to light, washing, and perspiration and improved fastness to sublimation. This newest development in the bluish-pink shade category is suitable for any method of application on polyester yarns, stock, and piece goods. It is also suitable for mixtures of polyester fibers with wool or cellulosics, and for acetate, nylon, and acrylic fibers.

Genacryl* Brilliant Red B

This is a new cationic dyestuff for Orlon and Acrilan and other acrylic fibers. It yields bright bluish shades of red reported to have very good fastness to light, washing, perspiration, and crocking. It is especially suitable for mixtures of acrylic fibers and wool or nylon, where the wool or nylon is to be kept as clear as possible.

Heliogen* Viridine Y Presscake Special
Heliogen Viridine Y Supra Paste (anionic dispersion)
Heliogen Viridine YTA Paste (anionic dispersion)
Heliogen Viridine YN Supra Paste (nonionic dispersion)

Heliogen Viridine Y is a new phthalocyanine pigment that has been physically conditioned to give a much yellower shade than the conventional Heliogen Green types. It has all the excellent fastness properties that are synonymous with the phthalocyanine pigments. All the above-mentioned brands are suitable for textile printing. Heliogen Viridine Y

*Registered trademark

*Registered trademark

*Registered trademark

Supra Paste, YTA Paste, and YN Supra Paste are also used in the spin-dyeing of synthetic fibers.

Hydron* Black B Paste

This product economically produces on cotton and rayon deep rich shades of black said to be of very good all-round fastness. It can be applied to yarns and piece goods on all types of vat-dyeing equipment. It is stated that its excellent fastness to light, particularly in black shades, its strong tinctorial build-up, and its usefulness as a shading element for dark navies are some characteristics which make it a very useful product for producing dyeings of very good fastness at a low cost.

Indanthrene* Direct Black AG Infra Paste

This new anthraquinone-type straight vat dyestuff is especially designed to produce bloomy black shades with very good fastness to washing and excellent fastness to light on cotton and rayon, and other cellulosic fibers in the various forms. It is direct-dyeing, oxidizing readily to the black shade without the need of an aftertreatment with chlorine. It may be applied to yarns and piece goods by means of the pigment-padding method, with subsequent development on the jig or continuous development in the steamer or Williams Unit. In addition to its excellent fastness and working properties, this product also is said to feature economy, uniform dispersion of the paste, and freedom from specking and setting out of the paste.

Indanthrene* Direct Black AG Extra Paste Fine

This new printing paste is a straight anthraquinone-type vat dyestuff that was produced particularly for the printing of deep economical black shades on cottons and rayons and other cellulosic textile fabrics. It yields prints said to be of excellent all-round fastness and is especially useful for printing drapery and upholstery fabrics that require outstanding fastness to light.

Indanthrene* Scarlet H4G Infra Double Paste
Indanthrene Scarlet H4GP Powder (dispersible powder)

This new vat dyestuff possesses high affinity for cottons and shows excellent build-up for high-tinctorial or full-strength dyeings of a bright scarlet shade. It is stated that this dyestuff also serves well as the main component for producing a wide range of compound shades of very good to excellent fastness to light, washing, chlorine, mercerization, and peroxide bleach. Economical formulations for rust, henna, and bright browns may be produced with this product. In blends of rayon and cotton, a very good union is obtained—a very desirable feature for producing solid shades on combinations of these two fibers. Dyeings made with this product maintain their shade and lightfastness after treatment with an anticrease finish. Both physical forms of this new dyestuff can be dyed in all types of vat-dyeing equipment. They are particularly suitable for pigment padding with subsequent development either on the jig or continuously in the steamer or Williams Unit; they are also suitable for the dyeing of packages in circulating machines.

Indanthrene* Maroon Brown B Infra Paste

This straight vat dyestuff is extremely level dyeing and produces a unique maroon-brown shade that is said to have good all-round fastness on cotton, rayon, and other cellulosic fibers. It can be used to produce a fine range of self shades and, in combination, to produce deep brown and chocolate shades. This product also is said to feature economy, superior paste quality, and good resistance of the soluble leuco to over-reduction during application. It is particularly well suited to the dyeing of fabrics that must withstand frequent washings, such as material for washable dresses, blouses, play and work clothing, and children's apparel.

Rhoduline* Blue 8GA

This is a new basic dyestuff developed primarily for the paper trade, especially for bright aqua shades on toilet and facial tissues. It is a greener and brighter companion type to the older Rhoduline Blue 6GA Conc.

Stilbene Yellow 8GP

This product is claimed to be presently the greenest and brightest stilbene yellow available to the paper trade for the production of inexpensive canary and bright green shades. It is particularly well suited to beater application on sized papers.

Supralan* Blue BG
Supralan Blue B3G

These are new premetallized neutral-dyeing acid dyestuffs designed primarily for the dyeing of wool, nylon, and certain acrylic fibers. It is stated that they provide strong, economical, greenish-blue shades having very good fastness to light, washing, perspiration, and rubbing. They are suitable for dyeing raw stock, slubbing, yarns, and piece goods. They are particularly well suited for dyeing mixtures of nylon and wool for wearing apparel and of nylon and cotton or rayon for upholstery.

Victoria Pure Blue BG Liquid
Victoria Green Liquid

These are free-flowing, pourable solutions of the long-known powder brands. They are offered for convenience and ease of handling.

* * *

THE HILTON-DAVIS CHEMICAL CO
2235 Langdon Farm Rd
Cincinnati, Ohio

Hiltonil Fast Garnet GBCP Solution

Hiltonil Fast Garnet GBCP Solution is a 40% solution of the corresponding base. The ease of diazotization of this product and the cleanliness of the diazo solution make this product of special interest to package dyers. This product is said to give clean, bright, rubfast dyeings with a minimum of soaping.

Hiltonil Fast Red KBN Base

Hiltonil Fast Red KBN Base is a more easily diazotizable form of Fast Red KB Base. The product has excellent dispersibility in cold water, thereby eliminating the necessity for boiling water as required for the corresponding Fast Red KB Base. This factor along with the purity of the product gives quicker and cleaner diazo solutions, which results in cleaner and brighter dyeings. Hiltonil Fast Red KBN Base is 80% in strength to the corresponding Fast Red KB Base.

Hiltonil Fast Scarlet 2GS Base

Hiltonil Fast Scarlet 2GS Base is the sulfate of Fast Scarlet 2G Base. The sulfate being easier to diazotize than the difficult-to-diazotize Fast Scarlet 2G Base is the main feature of this new product. Hiltonil Fast Scarlet 2GS Base is standardized to one-half the strength of Fast Scarlet 2G Base.

* * *

INTERCHEMICAL CORP
COLOR & CHEMICALS DIVISION
Hawthorne, NJ

Aquaprint* Supra Colors, Clears and Reactor

Aquaprint Supra Colors and Clears and Aquaprint Reactor were developed for use in Interchemical's reactive oil-in-water pigment-printing system.

Unlike regular pigment-printing colors and clears, those in the Aquaprint Supra Series are formulated with reactive binders. Aquaprint Reactor is a concentrated solution of an organic chemical which—under proper conditions of dry or wet heat—functions as a highly efficient cross-linking agent between the reactive binders present in printing emulsions made with Aquaprint Supra Colors. When this cross-linkage occurs, the individual molecules making up the binders are bridged by the cross-linker, to produce very large molecular aggregates which are much less soluble than are the individual molecules in water, detergent solutions, and organic solvents. During the drying, curing, or aging operation after printing these large molecular aggregates containing finely dispersed pigment particles form an integrated, pigmented film on the fibers which is said to be highly resistant to commercial laundering, repeated home washing, and both wet and dry crocking or rubbing.

There is evidence also that cross-linkage occurs between the reactive groups of the binders and the reactive groups present in certain of the synthetic fibers —such as the polyamides, polyesters, and polyacrylates—thereby contributing further to the fastness of the pigment prints on fabrics made from those fibers. The improved fastness obtained on cellulose and regenerated cellulose fibers indicates that there may be some degree of cross-linkage with those fibers. Likewise, the high degree of fastness on glass fabrics which have been treated with Quilon before printing makes it appear likely that there is a cross-linkage between the reactive binders and the Quilon-treated glass fibers.

Aquaprint Supra Colors and Clears and Reactor are used for the fast-color printing of a wide variety of fabrics, including those made from cotton, linen, rayon, acetate, polyamide, polyester, acrylic, glass, and other natural and synthetic fibers and blends.

Aquaprint Supra Colors have all the general advantages of the regular Aquaprint Colors plus a number of specific advantages. Among the specific advantages claimed for the Supra Colors when used in conjunction with the Aquaprint Supra Clears and Reactor are:

1. Extraordinary fastness to commercial laundering, repeated home washing, and both wet and dry crocking.
2. Excellent all-round fastness properties obtained either by acid aging or neutral steaming.
3. Satisfactory fastness for many end uses achieved merely by can or

*Registered trademark

*Registered trademark

*Registered trademark

tower drying without curing or aging.

4. Epecially suitable for the fast-color printing of dress goods and other fabrics containing synthetic fibers which are damaged at high curing temperatures.
5. Particularly suitable for printing alongside Aridye Colors employed in conjunction with Aridye Supra Clears and Aridye Reactor.
6. Can be printed alongside stabilized azoic dyes, vat dyes and aniline black in the same pattern to provide color combinations which are difficult to obtain in any way other than with a combination of pigment colors and conventional dyes.

Aridye* Supra Clears and Reactor

Introduction of Aridye Supra Clears and Aridye Reactor now makes possible a reactive water-in-oil pigment printing system.

These new products—in conjunction with selected Aridye 400 Series Colors—are employed for the fast-color printing of a wide variety of fabrics, including those made from cotton, linen, rayon, acetate, polyamide, polyester, acrylic, glass, and other natural and synthetic fibers and blends.

Aridye Supra Clears are formulated with reactive binders. The Reactor is a concentrated solution of a highly efficient chemical cross-linking agent. Under proper conditions of dry or wet heat, the Reactor links together the reactive binders present in the Aridye Supra Clears to form large molecular aggregates. The result is an integrated, pigmented film that is highly resistant to water, detergent solutions, organic solvents, and mechanical abrasion. There is evidence also that cross-linkage occurs between the reactive groups in the binders and reactive groups present in certain natural and synthetic fibers.

The new reactive water-in-oil pigment printing system has all the general advantages characteristic of w/o printing emulsions plus a number of specific advantages. The specific advantages are the same as those given for Interchemical's reactive o/w system under the listing "Aquaprint Supra Colors, Clears and Reactor."

Aridye*/Aquaprint* Red 3B

Aridye Red 3B is a new resin-bonded pigment color formulated especially for fast-color printing cottons, synthetics, and blends. It is applied to textiles in the form of a pigmented water-in-oil emulsion. Aridye Red 3B has no prototype; the pigment employed was developed by Interchemical. This new red is particularly useful for producing bluish red shades requiring exceptional brightness. It is said to provide lightfastness tht meets normal dress goods requirements, and excellent fastness both to washing and drycleaning. Also, it provides excellent resistance to caustic cut-out in plissé work. Red 3B is offered also in Interchemical's Aquaprint Series. The colors in this series are applied to textiles in the form of pigmented oil-in-water emulsions.

Aridye*/Aquaprint* Bright Red DF

Aridye Bright Red DF is a new resin-bonded pigment color fomulated especially for fast-color printing cottons, synthetics, and blends. It is applied to textiles in the form of a pigmented water-in-oil emulsion. Outstanding among reds for brightness, it is said to provide lightfastness which meets normal dress goods requirements and excellent fastness both to washing and drycleaning. Also, it provides excellent resistance to caustic cut-out in plissé work. This new, bright red is offered also in Interchemical's Aquaprint Series. The colors in this series are applied to textiles in the form of pigmented oil-in-water emulsions.

Aridye*/Aquaprint* Brilliant Fast Pink 3B

Aridye Brilliant Fast Pink 3B is a new resin-bonded pigment color formulated especially for fast-color printing cottons, synthetics, and blends either for apparel or household uses. It is applied to textiles in the form of a pigmented water-in-oil emulsion. It is useful for producing bright, bluish pink shades requiring excellent all-round fastness. It is said to provide lightfastness which meets normal drapery requirements and excellent fastness both to washing and drycleaning. Also, it provides excellent resistance to caustic cut-out in plissé work. This new pink is offered also in Interchemical's Aridye Pigment Padding Series and Aquaprint Series.

Aridye*/Aquaprint* Rubine 2B

Aridye Rubine 2B is a new resin-bonded pigment color formulated especially for fast-color printing cottons, synthetics, blends. It is applied to textiles in the form of a pigmented water-in-oil emulsion. This new color is useful for producing bright rubine shades of good depth. It is said to provide lightfastness that meets normal dress goods requirements and excellent fastness both to washing and drycleaning. Rubine 2B is offered also in Interchemical's Aquaprint Series. The colors in this series are applied to textiles in the form of pigmented oil-in-water emulsions.

Aridye*/Aquaprint* Brilliant Fast Violet R

Aridye Brilliant Fast Violet R is a new resin-bonded pigment color formulated especially for fast-color printing cottons, synthetics, and blends for either apparel or household uses. It is applied to textiles in the form of a pigmented water-in-oil emulsion. It is useful as a self-shade for producing bright, reddish violet shades and also for shading and toning purposes. It is said to provide lightfastness which meets normal drapery requirements and excellent fastness both to washing and drycleaning. In addition, it provides excellent resistance to caustic cut-out in plissé work. This new violet is offered also in Interchemical's Aridye Pigment Padding Series and Aquaprint Series.

Aridye*/Aquaprint* Green Y

Aridye Green is a new resin-bonded pigment color formulated especially for fast-color printing cottons, synthetics, and blends for either apparel or household uses. It is applied to textiles in the form of a pigmented water-in-oil emulsion. Specific advantages of the new Aridye Green Y include clean, bright, attractive yellow-green prints said to possess excellent all-round fastness. It withstands 300 hours Fade-Ometer exposure without appreciable shade change or fading, and has excellent fastness both to washing and drycleaning. Also, it provides excellent resistance to caustic cut-out in plissé work. Green Y is offered also in Interchemical's Aridye Pigment Padding Series and Aquaprint Series.

Interchem* Polydye* Colors

Interchem Polydye Colors are highly dispersed dyes which are particularly suitable for dyeing polyester fibers in the form of raw stock, tow, yarn, and woven and knitted fabrics. All dyes in this series can be applied either by carrier-dyeing techniques on jigs or becks or by high-temperature methods. The colors that comprise this new series have good physical and chemical stability for dyeing at elevated temperatures. Also, they have good exhaustion, pile on, and leveling properties. They can be employed either as self-shades or in combinations with one another for producing a wide range of compound shades. Many of the Interchem Polydye Colors are said to have excellent fastness to sublimation, making them suitable also for application to certain other synthetics, such as acetate, triacetate, nylon, and acrylics. Following is a list of the latest additions in this series. Other Interchem Polydye Colors are in the development stage, and will be released soon.

Interchem Polydye Burnt Orange O
Interchem Polydye Red BC
Interchem Polydye Blue B

Interchem* Acetate Blue LTD

Interchem Acetate Blue LTD was developed to fill the need for a good low-temperature dyeing blue on acetate. It is stated that, because of its excellent pile on, exhaustion and leveling properties at both low and high dyeing temperatures, it is equally suitable for application on jigs or boxes. Interchem Acetate Blue LTD is useful either as a self-shade for producing bright blue shades of good depth or as the blue component in blends for producing compound shades, such as dark greens, navies, and blacks.

* * *

KOPPERS COMPANY, INC
CHEMICALS AND DYESTUFFS DIV
Pittsburgh 19, Pa

Amanil* Fast Brown LGL
Amanil* Fast Black GGL

Two direct dyes for cellulosic fiber that are said to produce dyeings of excellent light, crocking and water fastness. These colors withstand resin-fixative treatment with minimum loss of lightfastness. These dyes find use in the automotive body cloth, furniture covering and drapery trade. They are satisfactory for "wash and hang" draperies.

Amanil* Napthol AS-SW 50%

A useful and convenient form of Napthol AS-SW, being dispersible in water, and dissolved by mixing with hot water and caustic soda and bringing to the boil. Yarn may be dyed directly without prescouring with increased depth of shade, and with excellent penetration.

Amanthrene* Dark Blue BO-MF Paste
Amanthrene* Navy Blue BN-MF Paste
Amanthrene* Red Brown MF Double Paste
Amanthrene* Direct Black AP-MF Paste
Amanthrene* Brilliant Green J-MF Double Paste
Amanthrene* Olive Green B-MF Paste
Amanthrene* Flavone GCN-MF Paste

The Amanthrene "MF" pastes are claimed to represent the finest vat color dispersions, promoting cleaner dyeings,

*Registered trademark

*Registered trademark

*Registered trademark

improved penetration and better crockfastness.

Basol Fast Red KB

Basol Fast Red PDC

These products are solutions of the corresponding Fast Color Bases. They are soluble directly in water containing mineral acid, and simplify the work of the dyer. Yarn dyed with the Basols will be soft and lofty, and dyeings are said to possess excellent fastness to crocking.

Fast Scarlet GC Base

To facilitate the dyer's process, Fast Scarlet G base is offered in the readily soluble form of the hydrochloride. The use of hot water for dissolving is unecessary and less acid is required in the diazotization procedure.

* * *

METRO-ATLANTIC INC
Centredale 11, RI

Metrozol Dyestuffs

The Metrozol dyestuffs are a new series of azoic dyestuff compositions especially developed for printing applications where neutral aging is necessary. These Metrozol colors can be developed either with neutral or acid steaming, but their greatest use is expected to be in those patterns where acid aging is not desirable. For example, when printed alongside fiber-reactive dyes or vat colors, the entire pattern can be developed by neutral aging. Metrozol colors are available in either powdered form or in solution. At the present time the range includes the following:

Metrozol Blue NB
Metrozol Red NG
Metrozol Red NR
Metrozol Scarlet FNR
Metrozol Scarlet N3R
Metrozol Yellow NG

Further additions to the range of colors are being worked on.

* * *

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL CORPORATION
40 Rector Street, New York 6, NY

National* Carbanthrene* Navy Blue RA Double Paste

An IN group anthraquinone vat dye producing a navy blue shade on cotton and rayon. It is practically unaffected by the presence of metal in the dyebath and possesses excellent Franklin solubility. It is suitable for use in all types of dyeing equipment, and is particularly well adapted for printing and pigment-padding application. National Carbanthrene Navy Blue RA Double Paste is said to possess excellent lightfastness in heavy shades and very good to excellent fastness for most wetfastness tests. It is suitable for application to materials that are subsequently rubberized, and for the production of dress good and suitings.

National* Carbanthrene* Scarlet RBB Paste

An IW (IN) group anthraquinone vat dye producing a slightly bluish shade of bright red on cotton and rayon. It is practically unaffected by the presence of metals in the dyebath, and is suitable for use in all types of dyeing equipment. This product is particularly well adapted for package dyeing and the various pigment impregnation methods of application. National Carbanthrene Scarlet RBB Paste is said to possess good lightfastness and very good to excellent fastness to most wetfastness tests. It is recommended for the production of dress goods and suitings that are to be subsequently resin finished for crease resistance.

National* Scarlet YC Base

An azoic base applicable to cotton and rayon. It produces a range of exceptionally bright, red shades when diazotized and coupled with most National Naphthols except Naphthol AS-G Disp, which yields a bright greenish-yellow. Most of these couplings exhibit very good fastness to light, and very good to excellent fastness to most wetfastness tests. The very good light- and washfastness properties are said to be outstanding characteristics of this product. National Scarlet YC Base is applicable by all the dyeing processes generally employed for dyes of this type, and is recommended for coloring materials that are to be resin finished for crease resistance.

National* Sulfocarbon Black CGLS Solution

A sulfur dye producing blue-black shades on cotton and rayon. It is highly recommended for use in the various types of pressure machines due to its superior solubility and exhausting properties. This product is also suitable for coloring materials to be rubberized or resin finished for crease resistance. National Sulfocarbon Black CGLS Solution is said to possess maximum to excellent fastness to light, for heavy shades, and excellent fastness to stoving, acids, alkalis, perspiration, water and sea water; and very good fastness to washing, mercerizing and cross dyeing.

* * *

ORGANIC CHEMICAL CORPORATION
84 Valley Street
East Providence, RI

Orcolitefast Yellow B

A direct dyestuff in the bright greenish-yellow range, Orcolitefast Yellow B, when dyed on cotton or rayon, is said to possess an excellent lightfastness. With #3 AATCC wash test only a slight stain develops with very little reduction of shade. Its fastness to #2 AATCC wash test is excellent. This dyestuff's fastness to resin treatment, in addition to its other favorable characteristics, recommends itself to be utilized in "wash-and-wear" and in the upholstery trade.

Orcolitefast Yellow 2GLL

A recent and versatile addition to the line of resin-fast and fast-to-light direct colors, this dyestuff is said to provide the brightness and cleanness of shade which is often so diffiicult to obtain. Its change in shade is negligible upon the application of resin aftertreatment. It is stated that its lightfastness is excellent and it has a rating of 4 to #3 wash test. Orcolitefast Yellow 2GLL is recommended for use in "wash-and-wear" and upholstery shades, either on yarn or piece goods, where these particular fastness qualities can be of greatest value.

Orco* Metallan Grey CBL

A recent addition to the range of neutral-metallized type of dyestuff, Orco Metallan Grey CBL is said to offer execptional lightfastness on wool, silk and nylon. The dyestuff's fastness to wet treatments is very good and its neutral grey tone with good color strength makes it an excellent self-shade grey as well as a shading auxiliary in matching.

Orcozine Yellow R, 3GN

These two dyestuffs of the modified cationic type, are recommended for use on Orlon and Acrilan. It is claimed that, in addition to their excellent fastness to light and very good wetfastness, they offer bright yellow shades of high tinctorial value and their use would tend to reduce overall cost of dyeing.

* * *

PUTNAM CHEMICAL CORPORATION
Beacon, NY

Basacryl* Yellow 7GL

A new addition to the Basacryl dyestuff range, which are cationic dyes specifically manufactured for the dyeing or printing of acrylic fibers. Basacryl Yellow 7GL has the same high lightfastness as other types in this group. In conjunction with Basacryl Blue GL, very bright green shades are obtainable.

Lumatex Yellow Green G
Lumatex Blue 3B
Lumatex Royal Blue
Lumatex Yellow Brown GG
Lumatex Green G

The above are new additions to the comprehensive range of pigments for water-phase printing. They are also suitable for padding with Lumatex Binder F. As other products in the Lumatex range, they are said to distinguish themselves by outstanding fastness to light, washing as well as crocking.

Neopilate* Brown GRNS
Neopilate* Blue 3GS
Neopilate* Blue 3RNS

These are new additions to the line of Neopilate, 1:1 metal complex dyes. They contain solubilizing groups but no sulfonic acid groups and their dyeing range is between pH 2.5-4.0. These new additions augment the range with very fast to light types. The products are easily soluble and excellent for use on woolen felts or heavy fabrics where penetration presents difficulties.

Ortolan* Violet F3B

Similar to other Ortolan dyestuffs, the Ortolan Violet F3B is a neutral-dyeing 1:2 metal complex compound. It is recommended for the dyeing of wool in all its physical forms and is also suitable for dyeing silks as well as polyamide fibers. Also suitable for application printing. Ortolan Violet F3B is said to have excellent fastness to light and good all-around fastness properties. It has good leveling properties.

Palacet Fast Dyestuffs

This group represents acetate disperse dyestuffs. Available types have been augmented with new products, fast to gas fading:

Palacet Fast Blue GF2G
Palacet Fast Grey GFB

Aside from their fastness to gas fading, the above products also are said to have excellent all-around fastness properties. They exhaust well on acetate as well as on triacetate.

Palanil Dyestuffs

This new group of dyestuffs has been specifically manufactured for dyeing as well as for printing on polyester fibers. At normal dyeing temperatures, a special carrier is recommended—Palatinit TX

*Registered trademark

*Registered trademark

*Registered trademark

5064. They also can be dyed at high temperatures or developed by heat.

This range of dyestuffs comprises the following:

Palanil Yellow G
Palanil Yellow 5G
Palanil Yellow 5R
Palanil Brilliant Yellow 8G
Palanil Orange G
Palanil Orange GR
Palanil Orange 3R
Palanil Orange 5R
Palanil Brown 3R
Palanil Brown 5R
Palanil Pink RF
Palanil Pink BF
Palanil Red GG
Palanil Red 4G
Palanil Red 5G
Palanil Rubine 3BD
Palanil Scarlet R
Palanil Scarlet RR
Palanil Scarlet 3R
Palanil Violet 3B
Palanil Violet R
Palanil Violet 5R
Palanil Violet 6R
Palanil Pink BBD
Palanil Blue G
Palanil Blue 5G
Palanil Blue 7G
Palanil Blue GR
Palanil Blue 4RD
Palanil Blue RRF
Palanil Blue R
Palanil Turquoise Blue BF
Palanil Black AD

Palanthrene* Direct Black RB (CI Black 9)

Excellent leveling vat black. Suitable for pigment padding as well as for package dyeing. Covers dead cotton. It is stated that it has good all-around fastness, including an outstanding fastness to light.

Palanthrene* Colloisol Types

The Colloisol types of Palanthrene vat dyestuffs represent finest dispersions of the vat pigments. Available in powder as well as in paste form. The following products in powder form are additions to an existing line of vat colors:

Palanthrene Red FBB Colloisol (CI Vat Red 10)
Palanthrene Rubine GR Colloisol (CI Vat Red 21)
Palanthrene Violet FFBN Colloisol (CI Vat Violet 13)
Palanthren Blue BC Colloisol (CI Vat Blue 6)
Palanthrene Blue GCD Colloisol (CI Vat Blue 14)
Palanthrene Blue RS Colloisol (CI Vat Blue 4)
Palanthrene Navy Blue BF Colloisol (CI Vat Blue 19)
Palanthrene Maroon BR Colloisol (CI Vat Brown 41)

Pilate* Fast Dyestuffs

The range represents 1:1 metal complex dyes with sulfonic acid groups. The following additional types have been added:

Pilate Fast Grey GLN, for self-shades as well as for shading purposes. It is said to possess excellent lightfastness, very good leveling. Slight difference in shade between daylight and artificial light. Union shade in blends of wool and polyamide fibers.

Pilate Fast Blue BN is said to possess very good lightfastness and excellent all-around fastness properties. Suitable for navy shades.

Pilate Fast Red Green Ex Conc is said to have outstanding fastness to light, excellent in other fastness properties. Bright shade.

* * *

SANDOZ, INC
61 Van Dam Street
New York 13, NY

Brilliant Alizarine Milling Blue F2GL Pat

Brighter (and greenest) addition to the Sandoz Brilliant Alizarine Milling Blue series. It is stated that its outstanding virtues include extreme fastness to washing, fulling, and perspiration. Chlorination does not affect its shade or fastness. Shade change due to chroming is negligible.

Cuprofix Yellow C-2 RLN paf

Aftercoppering direct color giving a bright reddish yellow. It is said to be outstanding for its fastness to light, either with Cuprofix or copper sulfate aftertreatment. Also has exceptional fastness to perspiration, and very good washfastness. There is no loss of fastness to light, nor any change of shade with resin finishing. Acetate is reserved.

Foron* Brilliant Yellow 6GFL ultra-dispersed Pat

Brilliant greenish yellow disperse dye said to possess fastness properties superior to previous greenish yellows on man-made fibers. Especially recommended for polyesters; also valuable for use on certan acrylic fibers. Extremely fine particle size recommends it for package dyeing and printing.

Foron* Scarlet 3GFL ultra-dispersed paf

Unique disperse red for polyester fibers. It is said to offer high degree of fastness to light, washing, perspiration, and sublimation, on polyesters and triacetate. Recommended for dyeing or printing. Wool reserve superior to previous offerings. Suitable for high-temperature dyeing.

Foron Yellow 2GL ultra-dispersed Pat

Disperse yellow particularly suitable for polyester fibers, and also recommended for use on acetate, nylon, and the polyacrylics. It is stated that its good all-around fastness includes resistance to sublimation.

Lanasyn* Olive 2GL paf

Claimed to be the fastest to light among true olive dyes of the homogeneous 2:1 metal complex class. Same all-around fastness as other members of the Lanasyn series. High solubility favors it for package dyeing and vigoureaux printing. Suitable for dyeing wool, nylon, and silk.

Nylon Black N2G

Considerably greener shade than its companion product, Nylon Black NDJ, but properties are the same.

Pyrazol Fast Blue BGUL

Good fastness properties, and economy in full shades on cotton and viscose rayon, are said to be advantages of this direct blue. It also offers minimum shade change when aftertreated with resins, fixing agents, or combinations of them.

Sandonyl* Fast Violet 4RL

In addition to covering barré effects on heat-textured filament nylon, this violet dye is said to offer a superior degree of washfastness. Build-up and other dyeing properties are good. It reserves the popular polyester and acrylic fibers. For best results, it should be used with Sandonyl Salt DN and Lyogen P.

Sandothrene Black N2BN Double Paste Ultrasperse

Useful for production of inexpensive vat blacks. Good lightfastness in heavy shades and level dyeing are claimed. Particularly suitable on cotton hosiery containing nylon-reinforced tip.

Sandothrene Direct Black NDPN Double Paste Ultrasperse

Jet in shade, this vat black is claimed to be the choice when goods demand unusually high fastness to light—in light or heavy depths of shade. Its small particle size recommends it for package dyeing. Also suited for stock, skeins, beams, and piece goods.

Sandothrene Grey NBG Paste Ultrasperse

Vat grey for use with "minimum-care" finishes. It is said to combine good all-around fastness with ability to withstand high temperatures, and freedom from tendering. May be dyed on all types of equipment; prints by flash aging or conventional methods. Fastness to bleaching is particularly good. Dyes very level and affords good unions between cotton and viscose.

Sandothrene Olive N2BM Double Paste

New, nonmigrating vat olive. It offers all the fastness properties of the Sandothrene Ultrasperse vats, plus the resistan to migration that is needed in pigment padding.

* * *

SOUTHERN DYESTUFF CO
Charlotte 1, NC

Sodyevat Black 4GS Paste
Sodyevat Liquid Black 4GS

Deep, jet, vat black shades can be dyed at low cost with these new dyestuffs where ultimate fastness to chlorine and peroxide is not required. Wash- and lightfastness are said to be excellent. Nylon-cotton combinations are dyed to union shades. The customary vat paste, as well as a clarified liquid, is available.

Sodyevat Black CSR Paste
Sodyevat Liquid Black CSR

A redder shade of vat black said to be characterized by low cost, excellent fastness to washing and light, and the ability to dye nylon-cotton blends to union shades. It builds to heavy shades with goods but not ultimate fastness to chlorine and peroxide bleaching. A smooth vat paste, as well as a clarified liquid, is available.

Sodyevat Olive FC Paste
Sodyevat Liquid Olive FC

Available as a finely dispersed paste, or as a filtered and clarified liquid, this low-cost vat dyestuff produces strong greenish-black shades said to be of excellent wash- and lightfastness, and good but not ultimate fastness to chlorine and peroxide bleaching.

Sodyesul Liquid Yellow BRCF

This new sulfur yellow has the unique property of not going reddish on resin treatment or exposure to acid or formaldehyde fumes. It is claimed that it is also superior to other sulfur yellows in chlorine- and lightfastness.

*Registered trademark

*Registered trademark

*Registered trademark

VERONA DYESTUFFS
Springfield Rd
Union, NJ

Astra Violet 3R Extra

This new basic violet is very economical and produces interesting red shades in combination with Astrazon Orange G. This product is particularly recommended because of its economy.

Astrazon Bordeaux BL
Astrazon Red 5BL
Astrazon Red Violet FRR

These are new, valuable additions to Verona Dyestuffs' Astrazone cationic dyes to be used in the printing and dyeing of acrylic fibers. These new shades are said to be particularly suitable as fast to light components for dark reds.

Diamond Chrome Fast Grey GL

An outstanding new chrome dyestuff, said to be particularly useful as the grey component for all combinations where high general fastness properties are necessary, including light, acid, cross-dyeing, and potting. Moreover, Diamond Chrome Fast Grey GL produces a clearness of shade which, it is claimed, cannot be matched.

Levalan* Blue FFR

This new homogeneous dyestuff produces brilliant shades of blue said to possess excellent fastness to light. It is recommended for wool, as well as nylon. This product levels very well, and is in shade, close to the Alizarine Brilliant Blue types, but can be dyed with sulfuric acid. For further details, request Technical Data Sheet #1003.

*Registered trademark

Levanol* Red 3BL

This represents a new milling-type red dyestuff of high tinctorial value. Levanol Red 3BL is said to exhibit good lightfastness and wetfastness properties and is suitable for dyeing nylon and nylon/wool blends.

Pharmol* Brilliant Green AN-16G

This new printing azoic produces brilliant green shades suitable for development by neutral aging. It is also suitable for resist styles under Aniline Black. This new green is said to possess excellent lightfastness and is only slightly sensitive to formaldehyde when printed with pigments. For further details, request Technical Data Sheet #1008.

Phthalogen* Navy Blue RRM
Phthalogen Brilliant Blue IF2GK

Phthalogen Navy Blue RRM is a newly developed shade in the Phthalogen range, serving mainly as a valuable shading cmoponent for Phthalogen Brilliant Blue IF3G.

Phthalogen Brilliant Blue IF2GK is a ready-formed copper complex suitable for application in printing, piece dyeing, and skein dyeing. It gives improved stability of print pastes and pad liquors. Phthalogen Brilliant Blue IF2GK is not sensitive to Aniline Black or formaldehyde vapors and is thus suitable for application together with vats.

Resoline Orange 5R

This new spicial dispersed dyestuff is particularly suited to the dyeing of polyester fibers and is said to possess good fastness to light and crocking.

*Registered trademark

Solazoic Blue G Solution

A safe, simple, and sure salt solution containing the required amount of nitrite, which needs only the addition of acid for diazotization. It is said to be excellent for cheap dark blues with very good fastness properties. Suitable for both piece goods and yarn dyeing.

Veranthrene* Yellow F2GC Paste Fine

A new, economical vat yellow dye producing dyeings said to possess outstanding fastness to light, washing, and chlorine. This newest Verona vat dye has excellent levelling properties and can be used for continuous as well as package dyeing. Veranthrene Yellow F2GC Paste Fine does not cannibalize the green component in mixtures and is recommended for combinations with Veronthrene Brilliant Green B Double Paste Fine to produce economical, fast-to-light green shades.

Verofix Brilliant Blue 3GL**
Verofix Yellow 4G**

These are the first two representatives of a new range of fiber-reactive dyes. It is claimed that these Verona products distinguish themselves from other fiber reactives inasmuch as severe washdown and the accompanying staining usually associated with most fiber reactives has been virtually eliminated. Lightfastness of Verofix dyes is not affected by resin aftertreatment. Four more dyestuffs of this type are expected in the near future.

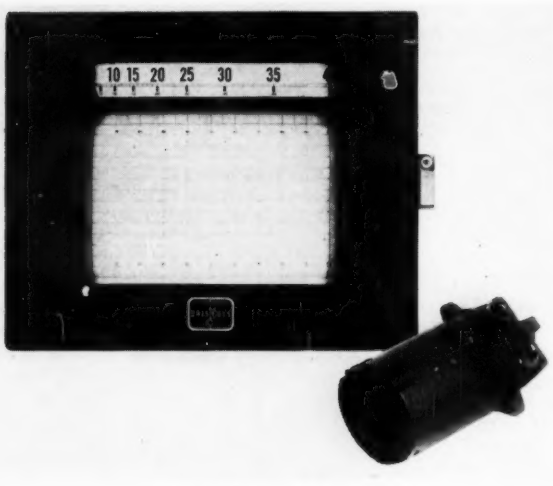
*Registered trademark
**Trademark pending

EQUIPMENT

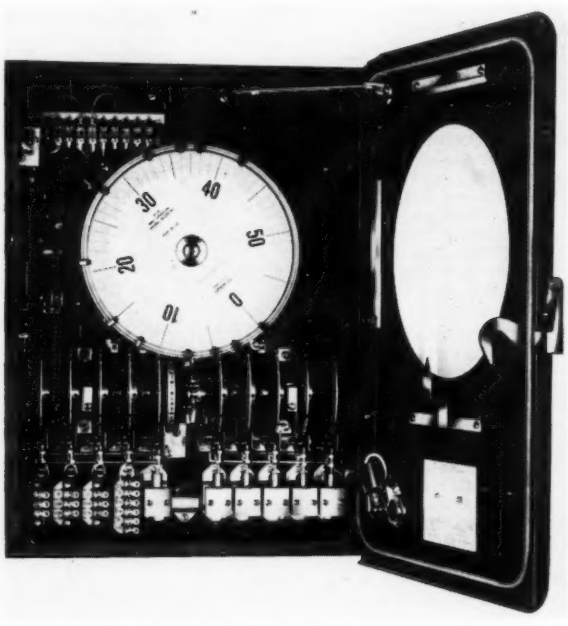
THE BRISTOL COMPANY
Waterbury 20, Conn

Bristol Velotron System

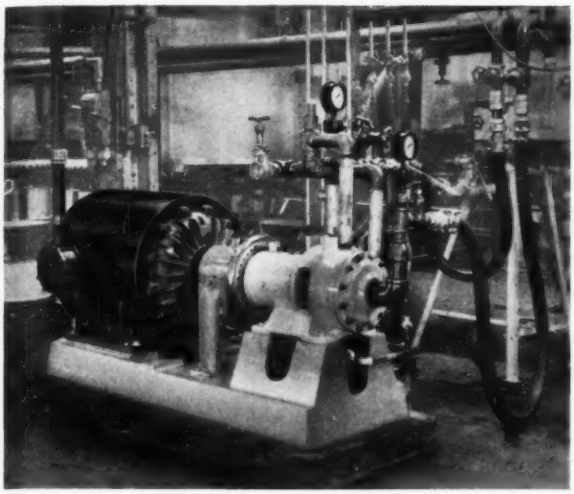
This new, low-range radiation pyrometer system, for ranges from 0-400°F, consists of two units: the low-range radiation pyrometer unit and a Bristol Dynamaster recorder or recorder-controller. The radiation unit converts radiant energy to an electrical signal which

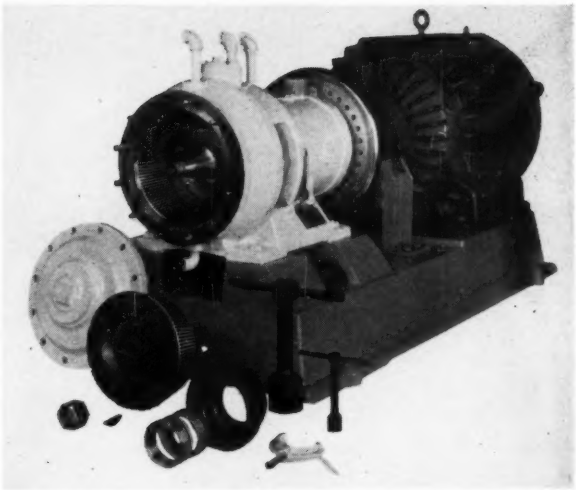


Bristol Velotron System



Bristol Model C1C500 time-cycle controller





Two views of large, standard production Charlotte Colloid Mill Model G-125

is the input to the Dynamaster instrument.

The pyrometer unit is sighted on the surface to be measured by the use of an eyepiece on the unit. Radiant energy is focused on a thermopile of 23 low-mass nickel chromium-constantin thermocouples. The thermocouple output is the signal to the Dynamaster.

The Dynamaster instrument corrects the measurement for ambient temperature and emissivity. In addition to round-chart or strip-chart recording, the instrument can control, either electrically or pneumatically.

The Bristol Velotron System is recommended by the manufacturer for temperature measurement of web-process products, liquid-process flows, and products undergoing fabrication, treatment, or finishing.

Model C1C500 Time-cycle Controller

Provides increased flexibility for controlling processes based on timed operations. The new instrument can time control as many as ten different variables for such applications as dyeing, water conditioning, and batch processes.

Ten pilots—pneumatic, electric, or a combination—reportedly may be operated simultaneously or in any sequence. Each pilot can perform up to 24 operations, it is claimed. The pneumatic and electric pilots can be easily changed or added.

Dogs set on the periphery of the timing disc determine the timing of pilot operations. Intervals between operations can be as brief as four seconds, and timing discs range from 0-15 minutes to 0-360 minutes.

Variations of the basic model offer standard pneumatic pilots, high-capacity pneumatic pilots, spdt switches, dpdt switches, and special-purpose switches.

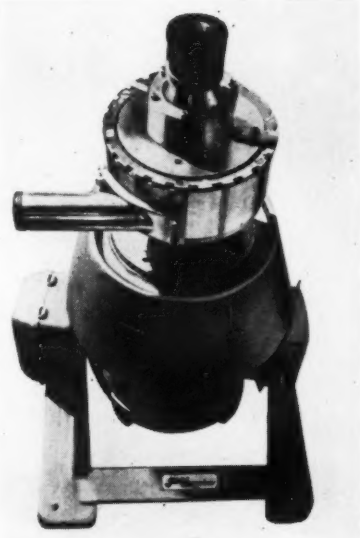
Bulletin C311 decribes the instrument in detail. The cycle controller, its function, and attachments are well illustrated.

* * *

BUSCHMAN PRODUCTS INC
114 East 40th St
New York 16, NY

Jet Mogenizer*

Four new models of the new Jet-Mogenizer incorporate three stages of homogenation and with increased capacities ranging from 150 to 500 gph.



Jet Mogenizer

Refinement in design reportedly has reduced power requirements notwithstanding an increase in production of over 20%. The new models are said to be more rugged in construction—25% heavier, and interior working area has also been increased 12%. The simplicity of its design, is said to assure negligible maintenance.

The new rotor embodies a new concept in design to multiply the combined forces of interparticle attrition and turbulence, impacting the fluid mass through a vibratory spline pattern rotating at 4500 fpm (patent pending). These effects are further magnified by throwing the rotor/stator splines out of register so as to set up eddying hydrodynamic pressure impulses at ultrasonic frequencies. Degree of dispersion and particle size is controlled through micrometer adjustment of stator.

The Jet Mogenizer reportedly is self cleaning and can be taken apart in 60 seconds. Bearings and shaft seal are said to be completely isolated so as to avoid contamination of processed materials.

* * *

CHEMICOLLOID LABORATORIES, INC
55 Herrick Rd
Garden City Park, NY

Colloid Mills

Colloid mills with new design features from one to 125 hp. Available in cast semisteel and stainless steel (type 316) for industrial and sanitary process applications, including textile dyes and colors. New rotary shaft seals require less maintenance on difficult products and service.

* * *

CUSTOM SCIENTIFIC INSTRUMENTS, INC
541 Devon Street
Kearny, NJ

Tuft Bind Apparatus

Designed to determine the force required to pull a single tuft from the carpet backing. This is accomplished by the addition of water to the container. Since the container is counter balanced, the water can be easily weighted to determine the force applied on the tuft.

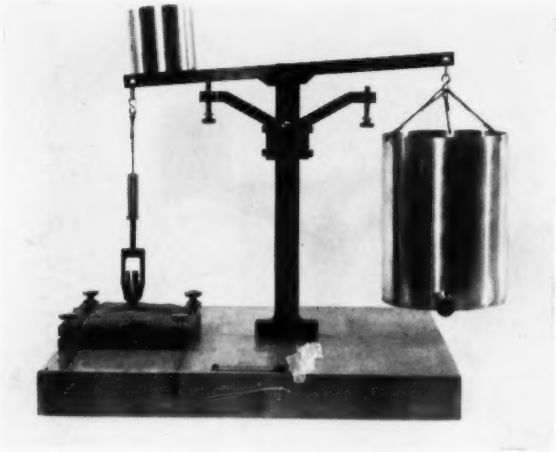
Carpet Crush Resistance Tester

Allows a force of 10 lbs per square inch to be raised and lowered on a carpet sample at the rate of six times per minute. The thickness of the carpet before and after a definite number of cycles can be measured to determine the crush resistance or resilience of the fibers.

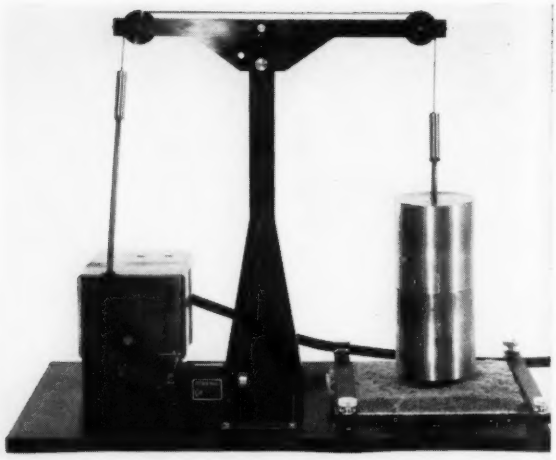
Carpet Thickness Gage

Designed for measuring the wear of carpet under test where normal thickness gages are unable to measure. The unit has a one-inch circular foot on a dial indicator with a weight which will exert on the specimen equal to 0.75 lb/in^2. Three needle points pierce the carpet until the point comes in contact with the base under the carpet. In this way many different positions and at different periods of wear may be measured. A mirror mounted in front of the dial facilitates reading of the scale.

*Registered trademark



CSI Tuft Bind Apparatus



CSI Carpet Crush Resistance Tester

W P Traveler Hardness Tester

A development of West Point Mfg Co and manufactured under agreement by Custom Scientific Instruments, Inc. The method of using this tester is rather simple.

It is started with the two jaws in the closed position and the dail indicator set to "0". Next, a traveler is placed under the two jaws, and then the handwheel is slowly and steadily turned in order to open the jaws.

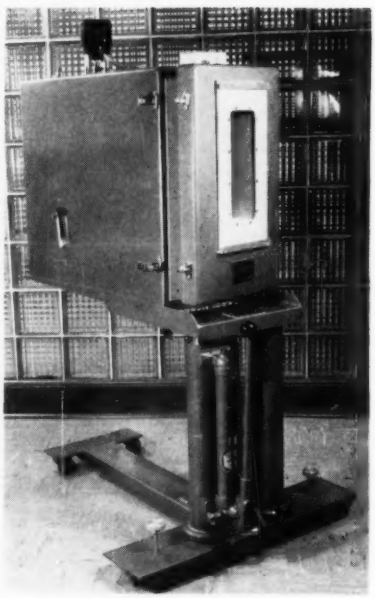
The distance which the jaws move will be registered on the dial and this dial reading will correspond to the traveler opening at the time the traveler breaks. As soon as the traveler breaks, the handwheel is stopped and the dial is read.

Since the thickness of the two flanges is about the dimensions of the opening on a No. 2 flange traveler, the dial indicator will read the amount of stretch or increase in this traveler opening before break.

If this tester is used on several different flange travelers such as 1, 2, and 3, there will be a slight error due to the variation in the original opening of the traveler horns. This may be compensated for in a number of ways. For most measurements this will be only a minor error.

After breaking 25 to 50 travelers out of a lot, it is possible to obtain an average of the opening between the horns at the time the travelers break. This average opening is a direct indication of the average hardness of the treveler.

One may not be so much concerned with averages as with the fact that some travelers in a lot may be too soft and may break too low. It may be advisable to use statistical quality control and set up ranges through which this opening may vary without giving trouble in the spinning room.



FRL Environmental Test Chamber

FRL Environmental Test Chamber

Inserted in the tensile test machine from either the front or the back. The chamber rests on a hydraulic-operated carriage. The minimum-maximum adjustable height is 28 to 43 inches measured from the bottom of the chamber to the floor. The chamber is a two-compartment electric oven or ice chest with the chamber divided vertically. The front compartment is the opening space whose temperature is to be controlled. The unit reportedly incorporates many new features with considerable saving in price over the original model.

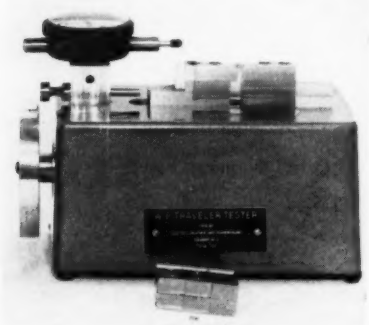
W P Gear Runout Tester

A development of the West Point Mfg Co and manufactured under agreement by Custom Scientific Instruments, Inc.

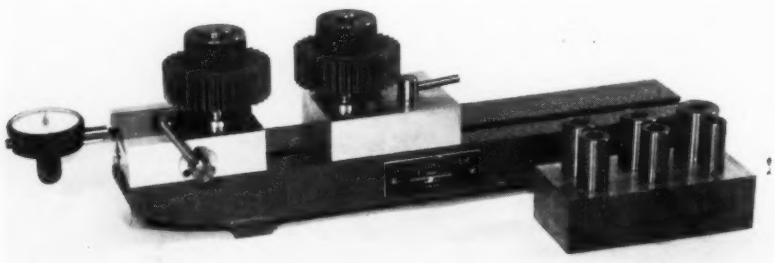
During recent years the textile industry has become more and more interested in drafting problems on drawing, roving and spinning frames. The roll runout tester was developed for checking roll runout and more recently, interest has been evidence in gear runout because it is in some ways quite similar to roll runout. Gear runout causes variations in angular velocity of the rolls and this in turn causes variations in the stock.

This device is a simple version of the conventional gear rolling fixture. This tester is designed primarily for checking total composite error and not for checking center distance between gears. However, the center distance could be checked by calibrating or setting up a fixed distance between the arbors.

The unit consists of a meehanite cast base on which is mounted two gear stud bases. The fixed base mounts a master gear with a 1" bore. The sliding base



W P Traveler Hardness Tester



W P Gear Runout Tester

mounts the test gear. Adapter bushings available are 5/8, 3/4, 13/16, 7/8, 1, 1-1/8 and 1-1/4 inch nominal gear bore. The test gear is moved into contact with the master gear while the loading device is compressed one half its stroke. The test gear slide is locked and the loading device on master gear released to apply load to test gear and assure proper contact. The dial indicator is zeroed (.0005" direct reading) and test gear slowly rotated to observe total runout.

* * *

THE FOXBORO COMPANY
Foxboro, Mass

Improved Cycle Log Conroller

Automatic rinse control has been newly developed for CycleLog controllers to provide single-instrument control of major dye-kettle operations.

With the addition of this feature, the rinse valve is said to open automatically to flush away spent dyestuffs and chemicals and maintain rinsing until the end of the cycle. A convenience to the operator, such control reportedly eliminates time-consuming supervision and costly waste of rinse water. Optional on new CycleLog controllers, rinse control may also be added to instruments now in service.

It is stated that easily adjusted settings on the front of the instrument now permit the operator to preset an entire dyeing and rinsing schedule on a single CycleLog controller: the dyeing temperature, the desired rate of temperature rise, the dyeing temperature, the holding time, the rate of cooling, and the rinse. The CycleLog is said to control the dyeing program by pneumatically operating steam, water and rinse control valves at variable time and temperature values.

Varicolored signal lights indicate each stage of the dyeing operation, and a 12-inch circular chart provides a permanent record of the cycle for quality control and future duplication of the dyeing schedule.

Automatic rinse control is available in two CycleLog models; Model 40 C-HR CycleLog Controller for heating-holding-rinsing, and the Model 40 C-HCR for heating-holding-cooling-rinsing.

* * *

HUNTER ASSOCIATES LABORATORY, INC
5421 Brier Ridge Rd
McLean, Va

Multipurpose Glossmeter

New photoelectric glossmeter is designed for textile yarns, fibers, fabrics, papers, paints, plastics, waxes and floor coverings. Accuracy is said assured by precise machine construction and assembly of all optical components. Adaptability of the instrument to both standard and new gloss tests reportedly is achieved by building the elements of the incident and reflected light beams onto aluminum blocks which are mountable at either 75°, 60°, 45°, or 20°. Because of the ease with which beam and field angles can be changed, the instrument is said to be ideally suited for special gloss tests of new products.

The optical and electrical units are in separate housings connected by cable. The instrument can thus be used:

1) With specimen on front,
2) Turned on its back with specimen mounted horizontally on top, or
3) With optical unit separate and mounted either flush in a table top for examination of large sheets or over a moving web for gloss recording.

For the textile industry, the new instrument will measure contrast gloss (luster) of yarns, fibers, and fabrics. Special specimen holders and loading stand are available for measuring yarns and fibers.

For high precision, a digital dial is used in the measurement arm of a null-balance bridge. This digital dial is operated either manually or by a servomotor.

Whiteness Reflectometer

Measures the whiteness, reflectance, yellowness, and opacity of white and near-white textiles, paints, papers, ceramics, foods, plastics, and soap products. It can be equipped with an ultraviolet absorbing filter, which may be alternated between the incident and viewing light beams to measure directly the contribution of the widely used fluorescent trighteners to specimen whiteness. The instrument uses paired vacuum tubes in a null Wheatstone bridge circuit. It employs a 45°0° geometry and has green and blue tristimulus filters, each with a separate pair of phototubes.

The instrument is built in two sections identical in size and shape so that when bolted together they form a small compact unit. On the left side are the light source, phototubes and 2-¼" round specimen viewing area. On the right side are the measuring circuit, vacuum-tube galvanometer and digital dial. When desired, these two sections can be separated by the cable length between them for convenience of sample presentation. An attachment is available with which to reduce the 2-¼" round specimen area to ⅜".

* * *

KLIPVEL VALVES, INC
1075 Lincoln Ave
Hamilton, Ohio

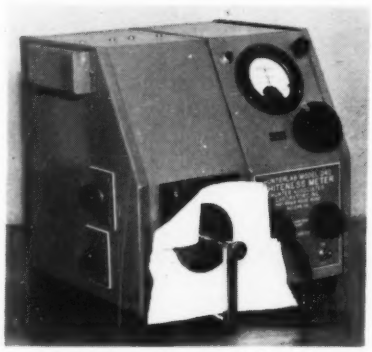
KP-4 Pressure Reducing Valve

New, external pilot operated steam pressure reducing valve is said to meet all requirements for use at most steam-pressure reducing valve installations.

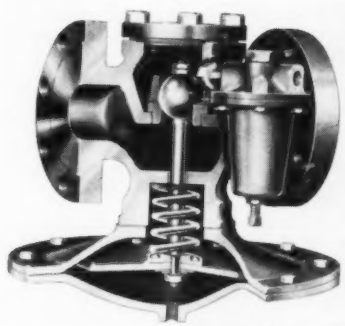
Although extremely sensitive, its simple operation is said to insure trouble-free service. Pressure adjustments are made by turning the adjusting screw on the pilot valve. It will close tightly for dead end service.

Outstanding features of the new No.

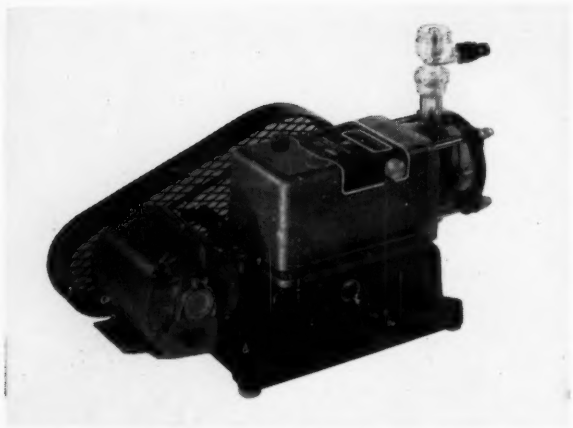
Foxboro Model 40 C-HCR CycleLog controller



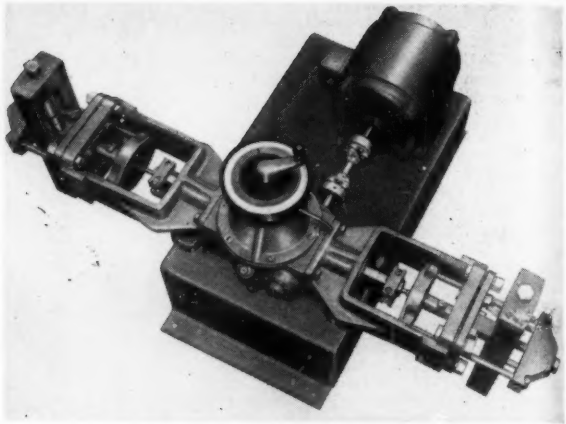
Whiteness reflectometer



Klipvel KP-4 pressure-reducing valve



Wallace & Tiernan Series A-747 Diaphragm Pump.



Wallace & Tiernan Series 200 Pump
Shown here is the duplex model, adjustable while pump is in operation.

KP-4 valve include an AISI-type 440C stainless-steel ball inner valve, said to be perfectly spherical and extremely hard, which closes against a monel seat ring. This combination reportedly will withstand the wire-drawing effects of steam indefinitely. The tapered form of the opening between the ball inner valve and beveled seat ring is said to increase the valve capacity by streamlining the flow of steam.

The large main valve diaphragm is made of stainless steel to permit use with higher pressures and temperatures. The control spring is located entirely outside of the path of steam flow.

This valve is manufactured in sizes from ¾" to 4". It is available with bronze, semisteel or cast-steel body. Screwed ends are offered in sizes up to 3". Flanged bodies are offered in sizes from 1¼" to 4". Stainless-steel trim, in both the main valve and pilot valve, is standard in all sizes.

For further information, request a copy of Bulletin No. 600.

* * *

METTLER INSTRUMENT CORPORATION
Hightstown, NJ

Balance Model H23 C10

Semiautomatic, direct reading balance, with a capacity of 16 grams, optical range of 10 grams readable to one milligram. For rapidly determining unknown quantities and for weighing up small quantities of dyes. A container can be tared to zero.

Balance Model H23 C10/13

Same as above balance only added to it is a direct reading in cotton yarn number.

* * *

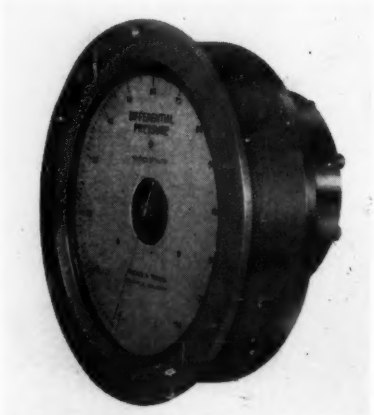
PHOTOVOLT CORP
95 Madison Ave
New York 16, NY

Multiple-reflection Galvanometer Model 45

A self-contained spotlight galvanometer of extreme sensitivity for the indication of minute DC currents and voltages in research as well as in production laboratories.

The galvonometer reportedly is designed to furnish clear readings conveniently and without eyestrain. Further features of the design are said to be its smooth wide-range zero control and the ease with which the galvanometer element can be exchanged to meet the requirements of a great variety of applications.

Request Bulletin No. 965.



Wallace & Tiernan
Hi Pressure-Lo Differential Gauge

WALLACE & TIERNAN INC
25 Main St
Belleville 9, NJ

Metering Pumps, Series 200

Pump is electrically driven, and is of positive displacement, reciprocating, plunger type. Capacities range from 0.65 to 2025 gals per hour. Metering accuracy is within ±1%, and the standard model operates against pressures up to 4000 psi.

Series 200 Pump is designed to function with one, two, or three liquid ends. This gives increased capacity, and also the ability to control several liquids. A number of simplex, duplex, or triplex units may be coupled to the same drive shaft, reportedly giving great versatility and capacity.

One model is adjustable for stroke length and feed rate while pump is running. Another, otherwise identical model, must be stopped during adjustment. Both types have enclosed drives, and no dangerous moving parts.
Catalog File #420.200.

Diaphragm Pump, Series A-747

Pump is electrically powered, belt-driven, positive-displacement diaphragm type. Reported capacity range is from 4.5 to 250 gals per 24 hours. Feed rate adjustable over 10:1 range, with pump in operation. Adjustment is indicated on a scale.

A-747 pump is designed for rugged use, reportedly will give long service. Corrosion-resistant construction allows feeding of any liquid used in water treatment. Delivered as complete unit, ready to install.
Catalog File #80.130.

Hi Pressure-Lo Differential Gauge, Series FA-236

Designed primarily for use where small differential pressures at relatively high line pressures are to be accurately measured. Reportedly meets the most exacting demands of production, research, and test work in precise measurement of gas or liquid flow.

Said to be accurate to 0.5% of full-scale range, and sensitive to pressure change of one part in one thousand. Mechanism contains no pressure transfer liquid subject to contamination. Fully temperature compensated. Dial can be supplied with any calibration, eg, inches of water, psi, mm Hg, etc.

Series FA-236 gauge is available in two standard ranges. One has full-scale range of two psi differential at line up to 50 psi. Other model has five, 10, or 20 psi differential at line pressures up to 300 psi.
Data Sheet TP-47-A-1.

Mettler Balance Model H23 C10

HIGHLIGHTS OF THE PAST YEAR

P J WOOD
Technical Director
Royce Chemical Company

FABRICS

FROM time to time, in this annual review, we have briefly referred to developments in the field of manufacture of fabrics, woven or knitted.

This year, one of the most noteworthy and newsworthy items in this area is one regarding the manufacture of a new-type "needle loom." The needle loom or needle-punching machine has been known for a while, but this new form of that machine has certain advantages, unknown to previous types, in the direction of superior speed and greatly increased width. These improvements have been made possible by a balancing of the drive and the use of light-weight beam materials, such as aluminum on these heavy machines.

The idea of this rapid punching of the batt, which may be made on any of the conventional types of machinery for laying down fibers in batt form, is evidently to cause the desired orientation of the fibers by pushing through the batt these barbed needles, which would tend to create "crosslinks" through the thickness of the fabric.

The big advantage of the nonwoven fabric is in the manufacturing time saved by jumping directly from the carded fiber to the finished fabric by this operation followed by simple application of heat, in the case of thermoplastic fibers, or resin in powder or spray form with subsequent application of heat where thermoplastic fibers are not used.

Speeds of 600 to 700 punches per minute are said to be possible on the machine illustrated in Figure 1, which is made in widths as great as 450 inches.

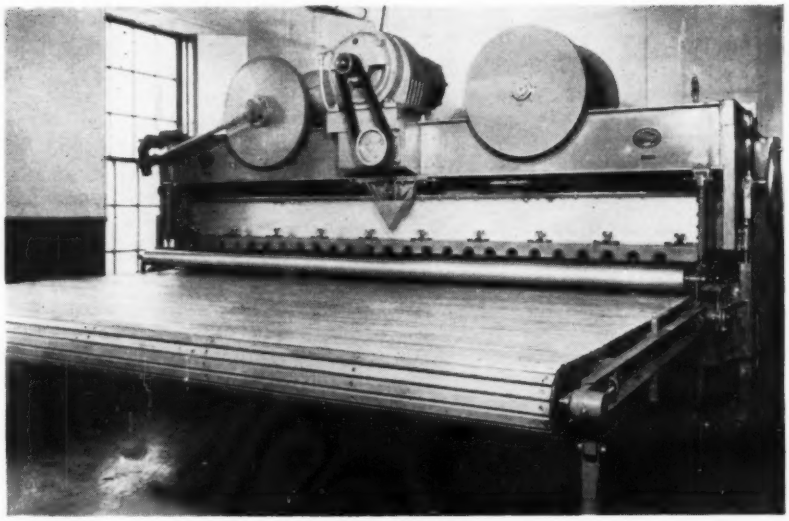


Figure 1

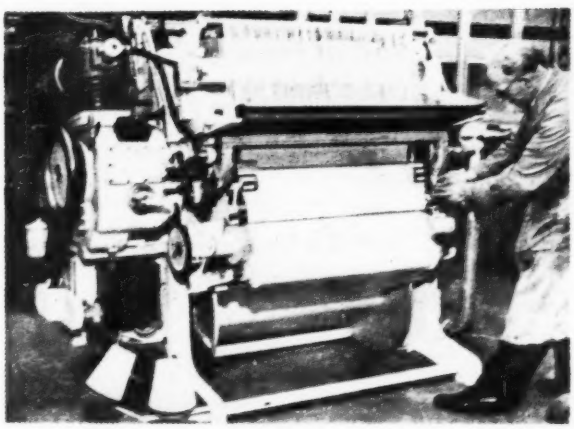


Figure 2

LOOM

Last year we mentioned the invention of the shuttleless loom made by KOVO, the Czechoslovakian manufacturer of textile machines of all kinds. In 1952, the first news of the shuttleless loom put on the market by the Swedish engineer Max Paabo was broadcast in the textile press.

At the most recent Textile Recorder Exhibition in Manchester, England, one of these looms attracted a great deal of attention. This type of loom has been running succesfully in Sweden over several years. (See Figure 2).

Up to the time we last looked up the Kovo loom, the width was still confined to 15 inches, although this may be changed by now. The Swedish loom, on the other hand, weaves cloth in conventional 40" width.

The filling is stored on a large cylinder from which it is clipped off in length to fit the exact width of the cloth and "blown" through the shed of the warp.

It is said that this loom can be driven at the almost incredible speed of 410 picks per minute with running efficiencies between 90 and 95%. By increasing the amount of twist in the filling yarn to a twist factor of five, it has been possible to pretically eliminate the slight tendency of the filling to untwist, improving both the weaving conditions and the quality of the cloth. The power consumption at 320 picks per minute is said to be not more than two horsepower.

LABORATORY

The trouble with most regular conventional drying ovens is that the hot air in them is "dead". Drying of textile samples in them is slow and often not very uniform.

A new type of oven, developed to fill the specifications of one of our leading research laboratories, is now available. This oven performs what might be called "dynamic drying", both speedy and uniform, which is of inestimable value when experimenting on the laboratory scale with operations which have to be perfomed many times in the course of a day's work, especially where accurate re-

Figure 3

producibility of conditions is of paramount importance. In trials of "wash-and-wear" finishes, which are principally produced by the use of synthetic resins, this oven should prove invaluable. (See Figure 3).

The secret of the success of this apparatus evidently lies in the large fan used to procure an extremely high air flow, 400 linear feet per minute. Even distribution of the heated air throughout every part of the oven is accomplished by an effective arrangement of baffles.

It is claimed that, after the oven has been opened, when an unavoidable drop in temperature occurs, the normal working temperature of 400°F is regained within one and one-half minutes.

★ ★ ★

Invention of new dyestuffs for existing or new fibers frequently requires development of new dyeing apparatus for application of those colors. In addition, in order to simulate, as far as possible, conditions in the dyehouse, it becomes necessary to devise new forms of laboratory apparatus to be used in making preliminary tests with the new colors on the new fibers and observing the same temperature and pressure optima as in large-scale dyeing.

Advent of the fiber-reactive dyes has given rise to the creation of new laboratory dyeing apparatus. Two of these are illustrated in Figures 4 and 5.

The apparatus shown in Figure 4 is for the batch dyeing of fabrics with fiber-reactive colors, the dyeing takes place in the cold. The machine usually employed is the jig. Goods/bath ratios can be varied from 1:4 to 1:20. The dye vessels are stoppered glass tubes of 89 cc capacity; these are clamped to the revolving member and, as no heat is required, there is no heating system.

Operation is simple. The fabric is introduced into the tube containing the cold dyestuff solution and run for a few minutes; the machine is stopped, the fabric withdrawn, the salt added, the fabric returned to the tube, and the tube clamped to the revolving center again for the necessary time. The fabric is again withdrawn, the required alkali is added, and the dyeing is continued in the revolving tube for the requisite period.

When closer temperature control is required, a controlled water bath can be placed under the revolving member carrying the tubes so that the tubes dip into the water at every revolution.

Figure 5 hardly needs description. The illustrations shows exactly what it is and how it operates. This type of laboratory dyeing gadget is useful for much higher goods/bath ratios, eg. 1:10 to 1:40 .

Dye vessels are sealed bottles or jars which are placed on rubber rolls operating in pairs; the jars rotate at

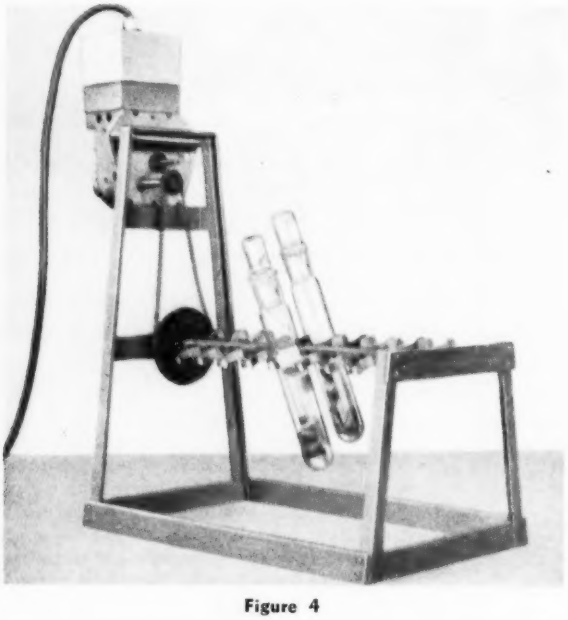


Figure 4

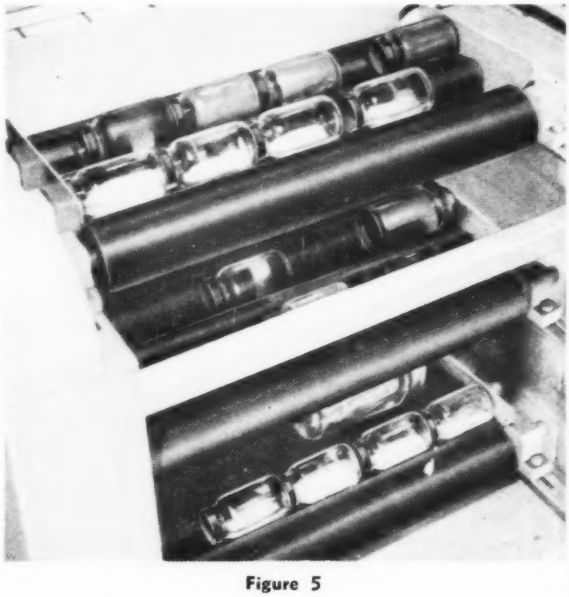


Figure 5

about 100 rev/min during dyeing. Larger samples can be processed in these jars than in the tubes previously described.

★ ★ ★

A very handy tool in the laboratory or in the mill is the pocket-size portable viscometer illustrated in Figure 6. By simply multiplying the sphere constant by the falling time in seconds, the viscosity in centipoises is readily obtained.

This apparatus needs only 25 cc of the material whose viscosity is to be determined. A mirror below the testing tube makes it easy to see just when the sphere strikes bottom. A second check can be quickly made by turning the instrument over and taking another reading. Even unskilled personnel can operate this device with utmost speed and accuracy.

For checking the viscosity of printing pastes and finishing mixes, this simple gadget should be very valuable. Each end of the fall-tube is closed by viewing windows. To clean it, it is only necessary to open both ends and run water through it. With a sticky compound, a test tube brush will do the usual job of cleaning.

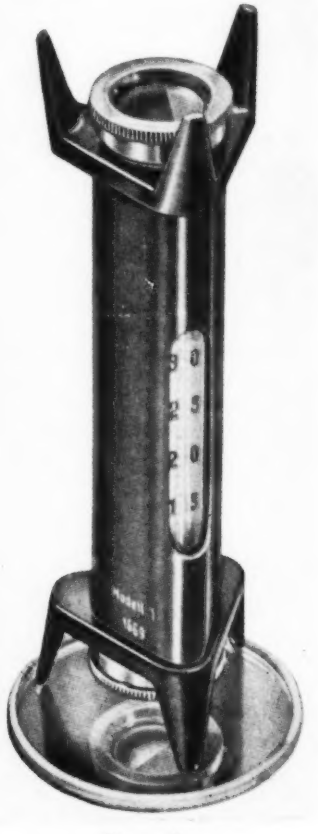


Figure 6

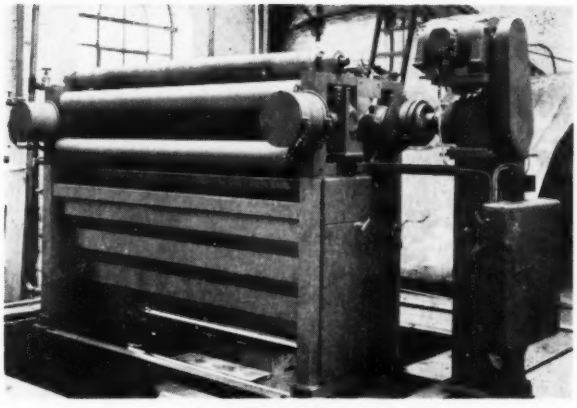


Figure 7

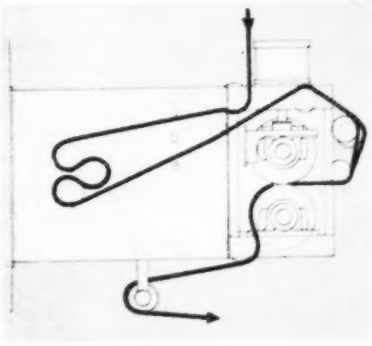


Figure 7a

IMPREGNATION

The machine illustrated in Figures 7 and 7a can be used either for impregnation, eg, in a continuous bleaching range, or as a washing unit, or as one of several such units in the same or similar continuous process. In conjunction with a flash ager, it might also prove useful for the new rapid desizing process.

It is provided with a powerful pair pair of squeeze rollers, the pressure of which can be varied from near zero to eight tons per square inch. A new feature is a pentagonal roller, driven by the passage of the goods, which gives a vibration to the running goods, thereby helping to secure better penentration of the liquor into the fabric. Means are provided to prevent formation of folds and creases.

PRINTING

By an ingenious system, the patentee has developed a method of making printing rollers without engraving, although the present patterns appear to be limited to two styles of prints: 1) stripes of all widths and dispositions; 2) granite, hit or miss patterns. The former lends itself to the production of an infinite variety of effects, while the latter is not easily and exactly reproducible.

In the case of the granité effects,

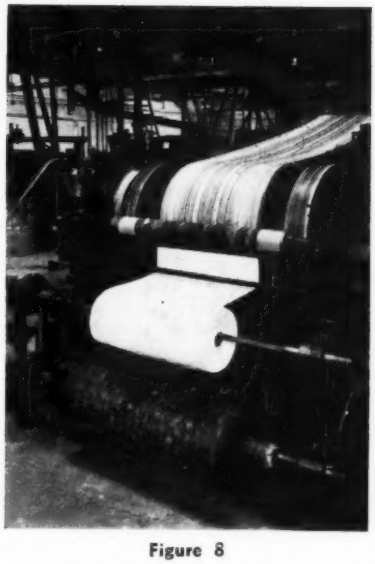


Figure 8

it is possible to use one background pattern of this type for printing cloth with dischargeable colors, afterwards overprinting with regular engraved patterns with either white or colored discharge in single or multicolored styles; or, if the background is printed in light enough colors, it can be overprinted with black or other dark colors, giving striking effects.

It is said that goods can be printed with such patterns at the rate of 20 to 40 yards a minute (1200-2400 yards per hour). (See Figure 8).

Says the reporter of this novelty . . . " let us wish that this invention, born of a long labor and obstinate research, brings a just reward to the Lyonesse prestige through its propogation in French factories, and abroad, where many patents have been applied for." We wish him success too.

★ ★ ★

The latest country to enter the field of screen printing machine manufacture, apparently, is Japan.

The manufacturer informs us that

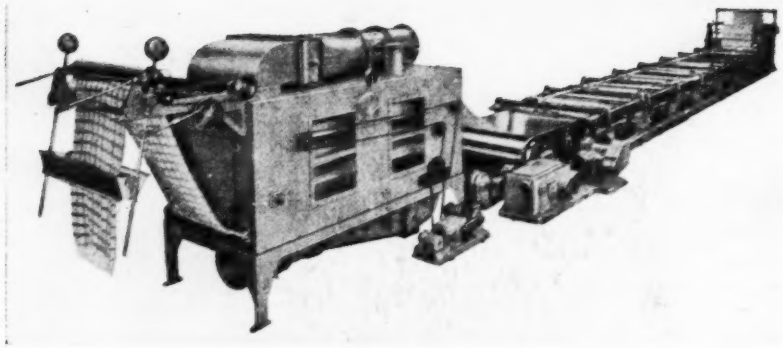


Figure 9

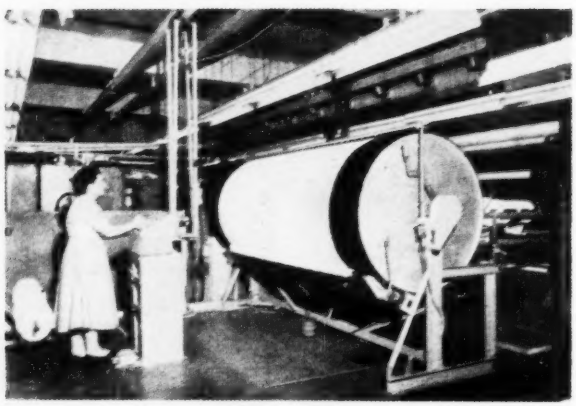


Figure 10

he has 60 patented devices on the automatic screen printing machine shown in Figure 9.

Outwardly it appears quite similar to the conventional machine of this type; the illustrations shows a machine capable of printing up to six or seven colors. The machine is constructed to take up to 14 colors and it is said to require the services of but two men. It produces 12 yards per minute for a pattern having a 36" repeat.

The maker claims that it costs less for maintenance, that power and steam consumption is lower than for other machines, and that it requires less floor space.

FINISHING

Examining machines are commonly used at the end of the entire series of operations covering finishing: however, in some establishments they are used several times in the course of passing through the dyeing or printing establishment.

Examining knit goods on an ordinary type of machine is somewhat difficult on account of the tendency of the knit goods to shrink in the width because of the pull in the direction of the length.

This difficulty seems to have been overcome in a new European examining machine (see Figure 10) which is claimed to be absolutely tensionless; and well it might be, as the principal of the machine is that the arbor carrying the goods is placed in close contact with a large-diameter cylinder, which takes the place of the conventional examining table.

This large cylinder has a large "grabbing" surface, which gently supports and transports the goods to the other side of the machine, where the knit goods are just as tensionlessly transferred to another arbor.

It should be useful for many types of fabrics that are prone to be distorted by the usual examiner having the ordinary sloping board. Fabrics that occur to us as being suitable for this machine are laces, nets, synthetic unwoven plastics consisting of extruded films, and, as indicated above, knitted or jersey cloths.

WET FINISHING

A decidedly revolutionary type of roll, recommended for calenders, padders, both two-roll and three-roll, and water mangles, was shown for the first time at the aforementioned Textile Recorder Exhibition. It is said to eliminate the necessity of of "crowning" such rolls, for it does not bend as does the conventional type roller. The inventor calls it a "swimming" roller, although we would have translated it as a "floating" roller.

It consists of a shell revolving on a fixed, nonrotating mandrel around which the tubular stainless- or covered-steel shell rotates. The cylinder bore is slightly larger than the outside diameter of the mandrel; this forms an annular space which is divided longitudinally into opposed compartments by sealing strips. Each chamber is sealed at both ends of the roller.

When oil, or oil and water, is pumped into the under compartment between the fixed mandrel and the ro-

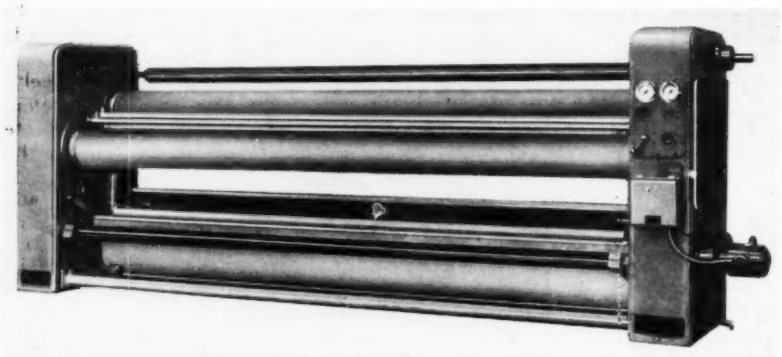


Figure 11

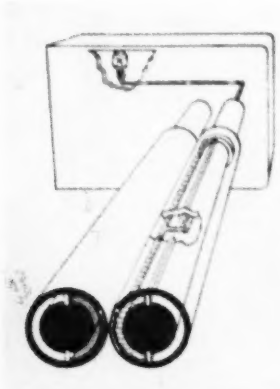


Figure 11a

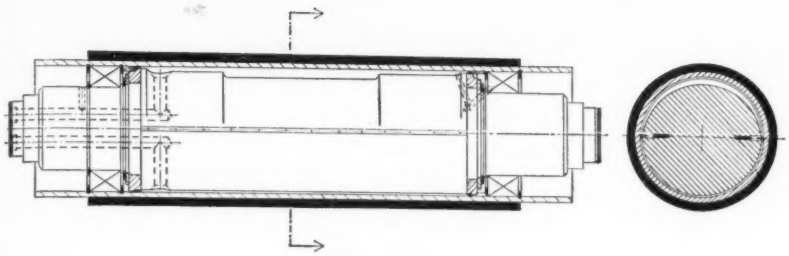


Figure 11b

tating shell, a pressure roller floating on a "cushion" of fluid results. This floating roller can be made of much smaller diameter than the regular roller rotating on journals. This reduces the line of contact and gives a *higher specific pressure* for a given load.

In the case of the water mangle constructed in this way, it is said that both thick and thin fabrics can be run at one time with equal percentage elimination of water.

Calender rolls of this construction can be heated by pumping in heated oil. This should give even heating of the roller from end to end, a condition difficult to attain with gas heating. (See Figures 11, 11a, and 11b).

★ ★ ★

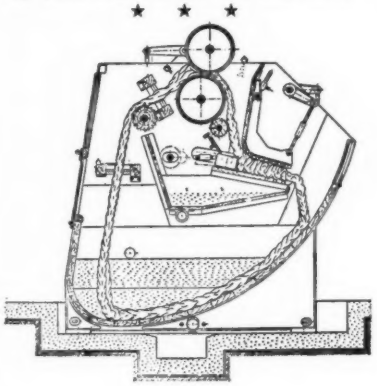


Figure 12

A good name for the novel machine shown in Figure 12 would be the "milling dolly" or "fulling dolly", whichever you prefer.

The machine is designed to carry out the operations of fulling and washing in the one machine, obviating the necessity of doing the fulling in a fulling machine, and then transferring the fulled goods to the dolly washer for the purpose of eliminating the soap and alkali used in the fulling operation.

Inspection of Figure 12 will reveal the principle of the device. It looks like a dolly washer with parts added to provide the fulling.

In practice, the initial fulling is started with a short but concentrated liquor and the required pressure is applied on the compression flap. After the fulling is almost complete, water is added and the cloth is scoured, during which time the fulling continues to completion. Then the rinse water is flowed in until all soap is removed.

During the scouring and rinsing, the compression flap is only lightly weighted.

This machine has proved highly efficient in handling knitted goods.

MISCELLANEOUS

Whether it be for dispersing insoluble dyes, such as vats, or for producing oil-in-water, water-in-oil or resin-binder emulsions for screen or machine printing or similar emulsions for waterproofing, coating or finishing, a good mixer is of prime importance.

Figures 13 and 14 illustrate two forms of apparatus that are worthy of note. They differ from the ordinary type of mixer as much as they vary from each other.

The one is furnished with a mixing element that plunges up and down at the high speed of 6000 vibrations

Figure 13

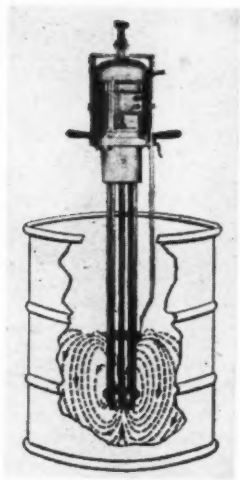


Figure 14

a minute. By this means the materials are not only circulated but are subjected to considerable impact effect, giving rapid reaction and complete interfacial mixing. There are no rotating parts so that gas can be led into the mix through a hollow shaft.

The other mixer depends on a revolving element for its mixing effect and this runs at 3000 revolutions a minute. The unique feature of this device lies in the deflector adjustment, which is standard equipment on all models. This can be adjusted during mixing operations.

The illustrations serve to show the essential differences of operation and appearance of these two useful pieces of equipment.

WASHING

Another item that attracted attention at the "Recorder" textile machinery show was a washing apparatus which, like the jigger described in one of the former issues of this review, was provided with a vibrating element that was said to promote removal of size and other impurities

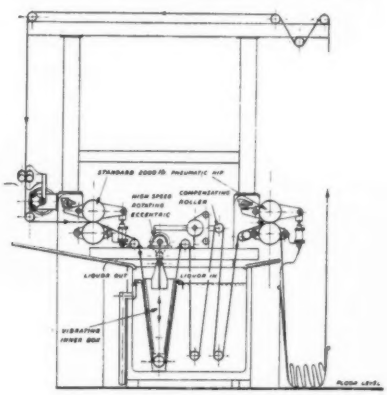


Figure 15

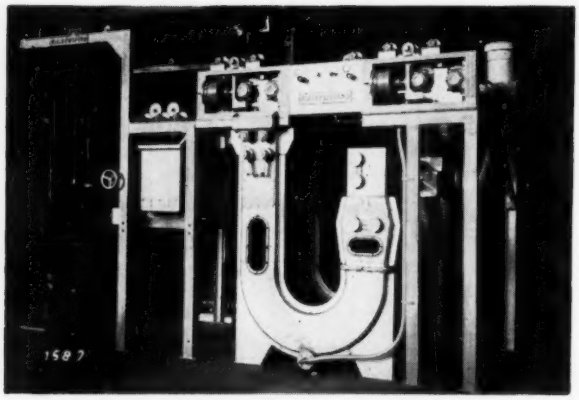


Figure 16

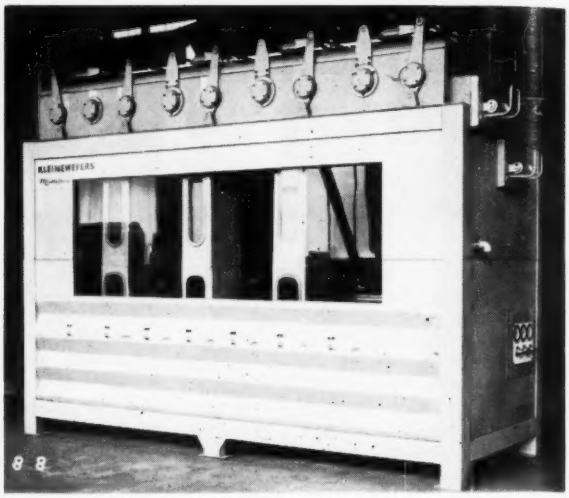


Figure 17

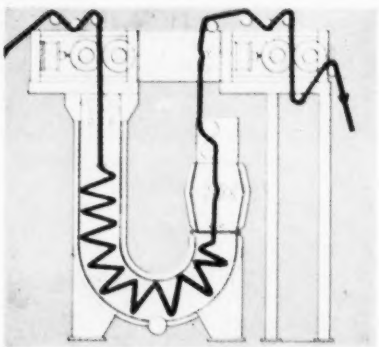


Figure 16a

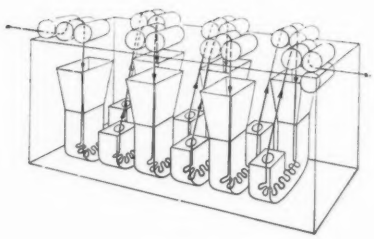


Figure 17a

in the scouring operation and to assure improved penetration of the dyestuff during dyeing.

The apparatus is of the normal design for such devices; the cloth enters one end of the tank and the water enters the other so that the goods first receive the vibratory treatment and the countercurrent principle insures contact of the clean goods with the cleaner water before leaving the machine. See Figure 15.

Figures 16 and 17 illustrate two washing machines which are said to provide more and better washing with less water than other existing types.

One is designed to treat cloth in the open width, the other handles it in rope form. From the side, the two machines look very much alike, the only difference between them being that the rope washer is narrow and the goods enter and leave the apparatus in rope form. In the case of the open-width machine, openers are provided to keep the cloth wide open throughout the entire passage through the device.

Figure 16 shows the machine for open width together with a diagram (Figure 16a) explaining its action. Figure 17 shows the rope washer, closed; the diagram (Figure 17a) shows the course of the cloth through the machine.

An Index to Volume 48 by Subject

and Author will appear in the

December 28th issue.

Proceedings of the
American Association of Textile Chemists and Colorists

Copyright, 1959, American Association of Textile Chemists and Colorists

December 14, 1959 No. 25

1959 Intersectional Contest First-prize winner———

PILE FABRICS*

NORTHERN NEW ENGLAND SECTION

COMMITTEE

DANIEL FRISHMAN, chairman
Malden Mills
FRITZ F KOBAYASHI
Lowell Technological Institute
HARRY A FREEDMAN
Malden Mills
DANIEL P COLLINS
Derby Co
HENRY L PERO
Union Carbide Chemicals Co
SAMUEL J GOLUB
ACH Fiber Service, Inc

Forty-one pile fabrics, representing a wide range of weights and heights, were prepared to enable the Committee to study structural characteristics of such fabrics and the effect of pile height, weight, fiber denier, softener and fiber length on compressibility, recovery and tendency to tuft or mat. Quantitative relationships were found for such structural characteristics as change of weight with height, and for density of pile as a function of total fabric density; the latter relationship being a measure of efficiency of construction.

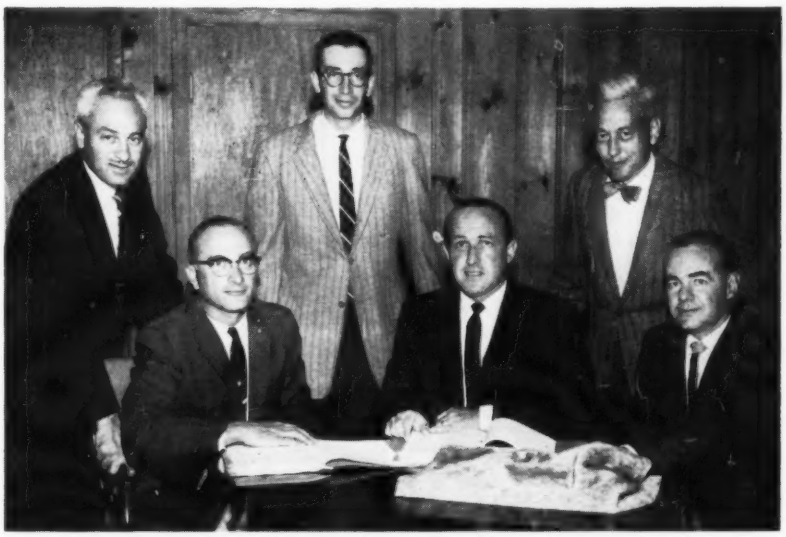
The most important new quantitative relationship relates compressibility to fabric construction:

$$S = k \log\left[\frac{h\sqrt{m}}{N\,d^{1.2}}\right] - k \log\left[1 + \tfrac{1}{2}\,\frac{h\sqrt{m}}{N\,d^{1.2}}\right] + C$$

where "S" is the percent decrease in pile height "h" under load "m" for a fabric containing "N" fibers (per unit area) of denier "d". "k" and "C" are constants, the former representing the slope of this straight line and the latter the intercept. This equation tells us, for example, that a fabric prepared from three-denier fibers will be compressed 14% more than a similar fabric prepared from 12-denier fibers.

The most surprising result of these experiments is the behavior of the group of fabrics prepared from a blend (50% of each, by weight) of three- and 12-denier fibers. These fabrics are similar, under compression, to fabrics consisting of 100% 12-denier fibers, but quite different from the fabrics consisting of 100% three-denier fibers.

* Presented by Daniel Frishman on October 9, 1959 during AATCC's 38th National Convention at Washington, DC



1959 NORTHERN NEW ENGLAND INTERSECTIONAL CONTEST COMMITTEE— Standing, l to r: Samuel J Golub, Harry A Freedman, Fritz F Kobayashi. Seated, l to r: Henry L Pero, Daniel Frishman, Daniel P Collins

INTRODUCTION

FURS, which are nature's pile fabrics, successfully provide animals with thermal and mechanical protection. Yet these properties are achieved with a relatively flexible fabric of low density. Animals vary the density of their pelt with geographic locations and season, and even provide longer, heavier and a greater number of fibers over those portions of the body which require special protection. A further refinement consists of coarser fibers (guard hairs), which extend above an insulating layer of fine ground fibers. These guard hairs provide additional mechanical protection, and, especially in aquatic animals, they are a barrier against the penetration of water into the fur.

It is little wonder that man early took advantage of this remarkable structure by utilizing animal furs and that he was unable, until recently, to reproduce this complex structure. But men have been working on this problem for a long time: woven rugs date as far back as 2500 BC, and now man-made pile fabrics cover the entire range of textures and densities of the animal world, including even guard hairs. In one respect, we have learned to utilize furs and pile fabrics more effectively than animals do. Eskimos maintain fabric flexibility and obtain the advantages of two piles by putting two caribou skins back to back, and designers, in a rare burst of combining functionalism and style, have put pile liners into outer pile shells. On the other hand, the fat beneath the skin does provide additional insulation as well as a stored food supply. If necessary, pile fabrics could be manufactured of digestible materials, but no fabric producer has as yet considered this an important market.

Pile fabrics are today constructed by many different techniques, each method of manufacture covering a

large variety of fabrics. In weaving, tufting and knitting, we find a range of heavy rug-type fabrics as well as light-weight apparel liner materials. Yet it has only been within the past seven or eight years that high pile fabrics simulating furs have become so popular. This development is the result of several technical advances which fabric producers have used to successfully establish this generic group of fabrics.

A special mechanical process and the advent of acrylic fibers were probably the two most important contributing factors to this development. By borrowing a technique first used in the conversion of sheep skins into the fur known as Mouton, and by adapting this technique to thermoplastic acrylic fibers, man has been able to produce synthetic, fur-type fabrics. The process referred to was euphemistically named "electrifying" by the fur trade and is now also known to the industry as "polishing" or "electro-converting" or "electro-polishing". For furs, a grooved heated cylinder rotating at a high speed disentangles and straightens the crimped wool fibers in the presence of formaldehyde. Temperatures of about 400° F and the formaldehyde "permanently set" the wool fibers in the straightened state, probably by crosslinking the polypeptide chains of the keratin molecules and by decreasing the water sensitivity of the fiber. To achieve this effect with fur or wool fibers is a tedious process, while with thermoplastic fibers this became much simpler. Thus, the present-day method of converting pile fabrics into fur-like materials essentially consists of alternately shearing and electrifying. As these techniques have recently received considerable publicity (*1, 2, 3, 4, 5*), it is not necessary to describe them in detail.

PURPOSE

The few studies of pile fabrics which have been made were mostly aimed at a particular end use and, as far as we know, there is no unified and basic study of these fabrics (*6, 9*). Actually, it is not an easy matter to perform a broad investigation by some of the methods used in pile-fabric preparation. For example, when yarns are used in preparation of the pile face, one must also consider yarn properties in addition to fiber properties. Furthermore, in many methods of preparation of pile fabrics, it is practically impossible to obtain a range of weights which covers both light-weight apparel fabrics and heavy-weight rugs without materially changing the fabric construction. However, one of the more recent methods of manufacture, the inserted pile-knitting technique, does permit one to hold many variables constant while studying a few simple things, such as denier, weight of face, finish, etc. With this possible, it was decided to study some basic features, such as the influence of pile height, weight, denier, length of pile fibers, and chemical finish on the mechanical properties of pile fabrics. The resistance to compression is an important factor whether it be in apparel, where one wishes to maintain thickness so as to provide an efficient thermal barrier, or in rugs, where the height of the pile contributes to its utility and aesthetic properties.

One of the most difficult aspects of this study was choice of fiber. If more than one fiber was to be studied, we would be forced to compare competing materials, a responsibility which would entail considerable work and could possibly divert the emphasis from basic structural features. In deciding which fiber to use, we were guided by the fact that fibers which contain acrylonitrile have achieved a considerable measure of success in pile fabrics, be they for apparel use or in carpeting. Dynel was chosen, since it not only met the characteristics required above, but it has also been rather widely used in pile fabrics, either in blends or alone. This Committee recognizes that the use of one type of fiber may be objectionable, but it is our belief that the program described below and its results will serve to stimulate and guide future investigations of this type.

TABLE I

General Plan of the Experiments

Fiber composition of pile (%, denier and staple length)	*Number of fabrics knit*	*Approximate height of pile prepared from each fabric knit (inches)*	*Number of fabrics obtained*
100% three-denier, 1.5 inches	2	7/8, 5/8, 3/8	6
100% three-denier, 2.5 inches	3	1 1/8, 5/8, 3/8	9
100% 12-denier, 2.5 inches	3	1 1/8, 5/8, 3/8	9
50% three-denier, 2.5 inches 50% 12-denier, 2.5 inches	3	1 1/8, 5/8, 3/8	9
100% three-denier, 1.5 inches plus softener	2	7/8, 5/8, 3/8	6
100% three-denier, 1.5 inches and backing heatset	1	5/8, 3/8	2
		Total number of fabrics	41

PLAN OF THE EXPERIMENTS

A total of 41 different fabrics was prepared representing different deniers, weights, pile heights and chemical finishes. The details are best visualized by referring to Table I, where it will be noted that 14 fabrics were knit and these were prepared in different pile heights. A complete description of the prepared fabrics with respect to their knitting weights, pile heights, densities, etc, is given in Appendix A.

FABRIC PREPARATION

The fabrics were knit on machines built by the Wildman Mfg Co, Norristown, Pa. This is basically a circular latch needle machine with a miniature carding machine mounted on the machine frame near the knitting feed. The card doffer is positioned directly over the hooks of the needles just ahead of each yarn-feeding point. Sliver fed into the card is carried to the rotating doffer which thrusts the fibers under the hooks of the needles. Then the knitting yarn and the bundles of fibers are knitted and are firmly anchored. There is, however, a very small amount of loose fiber on the surface of these fabrics, which is removed in subsequent mechanical processing operations.

After being knitted and slit, the fabrics were backcoated with an acrylic latex so as to give them dimensional stability during subsequent processing. After one treatment with the rotating heated roll (electrifying), the fabrics were sheared to finish height, again electrified and sheared to final height. In this way, all fabrics were given a relatively standard treatment. As indicated above, this

method of knitting and finishing can be found in many references.

The Dynel fiber as received from Union Carbide Corp was used in all instances, except in one case where an additional two percent of a widely used cationic softening agent was added.

METHODS

FABRIC WEIGHT———Careful measurements of weight and dimensions were made on the entire fabric sample and the ounces per square yard determined.

PERCENTAGE OF PILE & BACKING———The Dynel was removed with dimethylformamide, and from the weight loss of the fabric the percentage of Dynel determined. The acrylic backsizing was swelled with hot dimethylformamide, then treated with hot concentrated nonionic detergent, and finally washed out with water. To check these results, a fresh sample was taken, the cotton removed with 70% sulfuric acid, and the amount of cotton determined by the weight loss.

ACTUAL PILE IN FACE——— This was determined by carefully shaving the pile from the backing. As indicated above, a portion of the face fibers is actually knitted in the back and the amount of pile in the face is different from the total amount of Dynel in the fabric.

THICKNESS MEASUREMENTS———The thickness measurements were made using an Instron equipped with a compression cage designed and built by the instrument manufacturer. A circular presser foot, having a total area of 50 cm^2 was attached to the top of the compression cage. The distance between the bottom surface of the presser foot and the bottom of the compression cage was either 1.00 or 1.50″, depending on the thickness of the fabric tested.

Circular test specimens, 4-5/16″ diameter, were cut with a steel die, placed on the bottom of the cage, and the instrument started. The load vs distance curve was plotted directly by the instrument. The crosshead was operated at a speed of 1″ per minute and the chart at 5″ per minute. The full-scale capacity of the instrument was 1000 grams for this series of tests.

On a fresh set of samples compression measurements were made to a load of 10,000 grams per 50 cm^2. The machine was set to reverse when reaching this load and to trace a recovery curve.

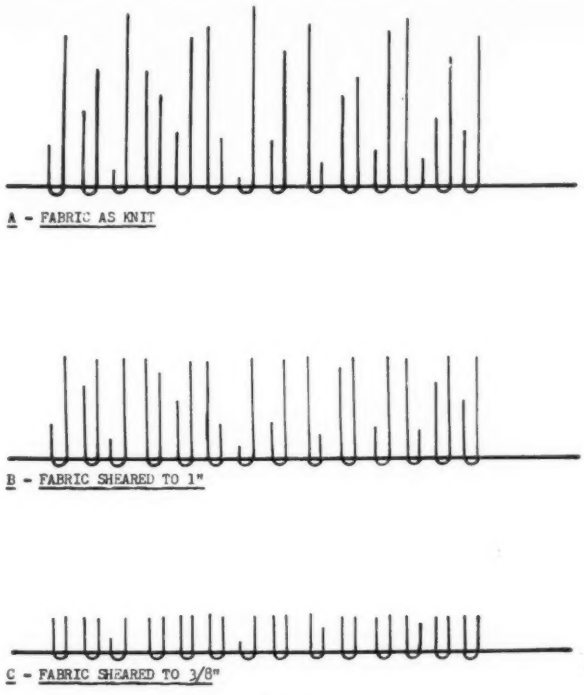


Figure 1
Idealized diagram of fibers in a sliver knit fabric

TUFTING STUDIES———One measure of the durability of pile fabrics is the resistance to the formation of tufts. In exploratory surveys, several types of abrasion machines, such as the Universal Abrader, the Schiefer Tester, etc, were used. The results of these tests were not in good agreement with actual fabrics which had become tufted and matted in use. However, it was found that a simple dry-tumbling technique in a washing machine duplicated the effect of wear more successfully. In several hours of such tumbling, reproducible differences among the fabrics occurred. The method consisted of tumbling 7″ × 7″ squares of fabric in an American Cascade washer. This was done at room temperature.

RESULTS AND DISCUSSION

WEIGHT AS A FUNCTION OF PILE HEIGHT———Shearing a pile fabric obviously reduces the weight, and when the pile is of uniform density from base to surface, one would expect the loss in weight to be directly proportional to the fraction of the pile removed. In a sliver knit pile fabric, however, fibers in the pile are randomly distributed with respect to length, similar to a natural fur where there are always growing fibers. An idealized diagram representing this is shown in Figure 1. It is apparent that, as the pile height decreases, the number of fibers at the pile surface increases and consequently the loss in weight during shearing increases.

Where there is a random distribution of fiber lengths in a pile, the weight of the face portion changes with pile height in accordance with Equation 1 (see Appendix B for its derivation).

Equation 1

$$W = W_I\left[1-\left(\frac{L-t}{L}\right)^2\right]$$

Where "W" equals weight of the face, "W_I" is the weight of the face before shearing[a], "L" the staple length of the fibers used in the preparation of the fabric, and "t" is the height of the pile after shearing. The curves in Figure 2 represent this equation over a broad range of weights, pile heights and staple lengths. This equation can be tested by referring to the experimental data in Appendix A, but before doing so, some consideration must be given to

[a] W & W_I is that weight obtained by clipping the pile from the back as described in "Methods".

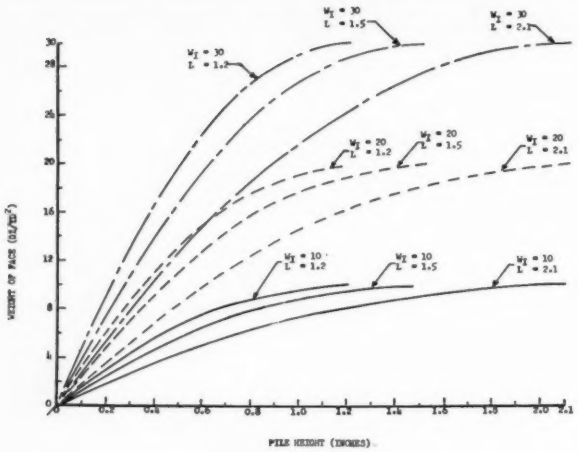


Figure 2
Theoretical curves showing change in weight as a function of pile height

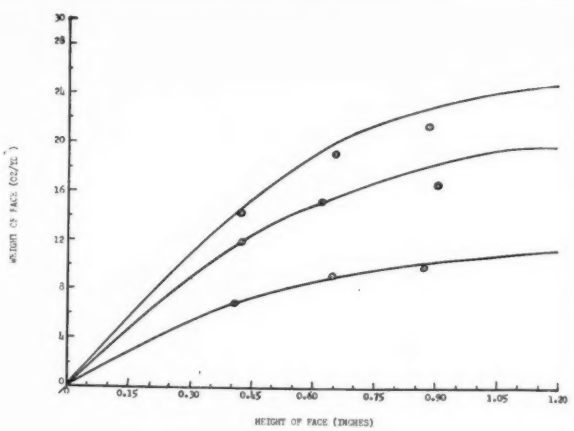


Figure 3
Weight as a function of pile height. Typical theoretical curves from Equation 1. The points are experimental

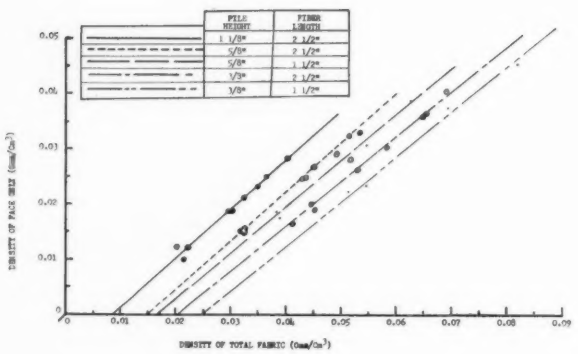


Figure 4
Density of the face as a function of density of total fabric

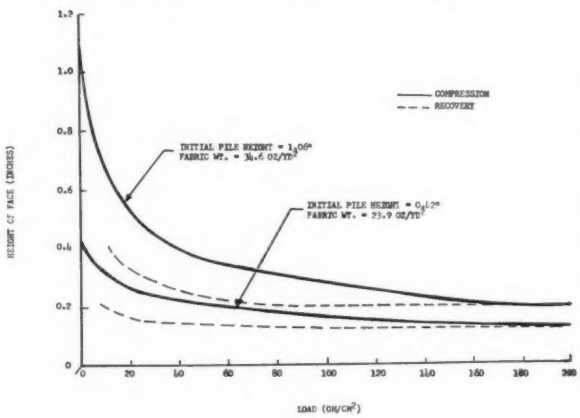


Figure 5
Typical compression and recovery curves to 200 g/cm²

the staple length found in the fabric as differentiated from the staple length designated by the fiber manufacturer. Because a portion of the fiber is in the backing of the fabric and the fiber crimp decreases the effective length of the fiber, the actual staple length must be determined.

The true length of the fibers can be determined by comparing the weight of the fiber in the face to the total weight of the pile fibers. In this way, it was found that about 0.3″ of each fiber is in the back, and good agreement was obtained between the experimental data and the theoretical curves shown in Figure 3 for fabrics prepared from 1.5″ fibers, the assumption being that the effective length of the fiber is 1.2″. Similarly, good agreement was obtained between theoretical curves and experimental points for three-denier 2.5″ fibers, but here we assumed that, in addition to 0.3″ of fiber in the back, there was effectively 0.1″ of crimp. On the other hand, examination of the fabrics containing 12-denier Dynel indicated that there was considerably more crimp, especially in the base of the fabric, and in order to obtain good agreement with the theoretical curves, we had to assume that in addition to 0.3″ of fiber in the base, there was 0.8″ of crimp effective.

These results for the 12-denier fibers are reasonable, as it would be expected that the coarser fibers would resist the removal of the crimp to a greater extent. However, the large value obtained was quite unexpected.

Why is it important to understand the change in weight as a function of change in pile height? First of all, our data show parabolic trends, which require explanation. Secondly, this matter is of general interest, for in the shearing of any raised fabric, weight losses are experienced which should be predictable. Actually, the special case of a linear loss with height is rare, occurring only in those fabrics in which there are as many fibers at the very surface as there are at successively lower levels. Thus, a method of predicting such changes in napped and pile fabrics would be of both theoretical and practical importance.

DENSITY———For all end uses, optimum thickness or height with minimum weight is the major objective in pile fabrics. Of course, the construction and weight of pile should be capable of withstanding compressive forces to which the fabric may be subjected. Generally, in pile fabrics the density is much lower than in other fabrics.

Ideally, a pile fabric would consist of a perpendicular and somewhat parallel array of fibers without backing. Thus, one measure of fabric "efficiency" is to compare the

TABLE II
The contribution of the back to fabric density or "b" values from Figure 5

Pile height (inches)	*Initial fiber length (inches)*	*"b" values (density) (grams/cm²)*
1 1/8	2 1/2	0.009
5/8	2 1/2	0.015
3/8	2 1/2	0.021
5/8	1 1/2	0.017
3/8	1 1/2	0.025

density of the face of the fabric with the density of the entire fabric.

In Figure 4 the density of the face only has been plotted as a function of the density of the total fabric from data in Appendix A. Straight lines are obtained which intercept the abscissa.

Equation 2

$$\text{Density of Total Fabric} = a\,(\text{Density of Face}) + b$$

where "a" is the slope of the lines and "b" the intercept on the abscissa. The values of "b" indicate the contribution of the back to the total density and, as would be expected, "b" increases as the pile height decreases. Also, for the shorter fibers the value of "b" increases because a greater fraction of the fiber length is in the back. The "b" values for the various blends prepared in this study are given in Table II.

These "b" values are actually a measure of "efficiency of construction" of pile fabrics; the smaller the contribution of the back, the more efficient the fabric. In this way, pile fabric manufacturers and those studying properties of pile fabrics may compare various constructions.

THERMAL PROPERTIES——Schiefer, about 20 years ago, demonstrated that the insulating properties of fabrics are mainly dependent on fabric thickness and relatively independent of fiber type. A more recent study made on pile fabrics (*6*) showed that the thermal transmission is inversely proportional to the thickness of the fabric, but is independent of construction and type of fiber over a wide range of fabric densities. Therefore, it was decided that thermal measurements would be omitted from this study and instead the factors which affect thickness under various loads would be investigated.

COMPRESSIONAL PROPERTIES——Pile fabrics are mainly subjected to forces perpendicular to the surface of the pile. These forces may range from hundreds of pounds per square inch in floor coverings to the relatively gentle pressure of wind in apparel use. In all cases, however, this decrease in thickness is undesirable. In this study, measurements were made up to 410 lbs/ft², or 200 grams/cm², and under these conditions some of the samples were compressed to less than 10% of their original height. However, in order to obtain accurate data at lower pressures, separate tests were performed where the full scale of the Instron went only to 41 lbs/ft² (20 grams/cm²).

Some typical compression and recovery curves are shown in Figure 5. They show the usual initial rapid decrease of thickness with load and then a gradual increasing resistance to deformation.

To study these curves we were faced with the problem of comparing a large variety of fabrics which differed in weight and pile height. The most satisfactory way found to analyze these data was to choose specific compression loads and to compare fabrics of the same pile height, but of different fabric weights. Thus, by plotting percentage change in height as a function of weight of the face of the fabric, and by restricting each family of curves to the same initial pile height and same compressive load, one can examine the effect of variables such as denier, finish and fiber length. In a similar way recovery data can be studied. Figures 6, 7, and 8 show data pertaining to compression, while Figure 9 has both compression and recovery curves.

Examination of these curves can lead to only a few qualitative conclusions:

1) *Effect of Denier.* The fabrics prepared entirely from the three-denier fibers were more easily compressed than those containing 12-denier fibers. The blend, by weight, of 50% three- and 12-denier fibers was quite similar to 100% 12-denier.
2) *Fiber Length.* At pile heights of 5/8" or longer, the fabrics prepared from 2.5" fibers were less compressible than those prepared from 1.5" fibers. But at a pile height of 3/8", the initial fiber length no longer affects the compressibility.
3) *Softener.* At lower pile heights the softener increased the resistance to compression. This was probably a result of increased friction between the fibers as indicated by the relatively poor recovery of these fabrics. In support of this idea, the unpublished data of a leading fiber manufacturer have shown that many softeners increase the coefficient of friction between fibers.
4) *Recovery.* The data pertaining to the recovery after compression do not indicate any differences among these fabrics other than those already expressed for compressibility.

GENERAL EXPRESSION FOR COMPRESSION OF A PILE FABRIC——It will be helpful to briefly examine the expression for the bending of a rod:

Equation 3

$$S = \frac{4\,m\,g\,h^3}{3\pi Y\,r^4}$$

where "S" is the displacement caused by the load, "m" applied at distance "h" from the point of support. "Y" is Young's modulus, "g" the acceleration of gravity, and "r" the radius of the rod. Hence, the displacement is inversely proportional to the fourth power of the radius and directly proportional to the load and to the third power of the length. If we were thinking of a fiber and wished to replace radius with denier we would find the displacement inversely proportional to (denier)².

One would not, of course, expect a closely packed group of rods, which help to support each other, to obey this law. Nevertheless, using Equation 3 as a guide, we found by empirical means an expression which described the behavior of these fabrics with a reasonable degree of accuracy.

Equation 4

$$S = k \log\left[\frac{h\sqrt{m}}{N\,d^{1.2}}\right] - k \log\left[1 + \tfrac{1}{2}\frac{h\sqrt{m}}{N\,d^{1.2}}\right] + C$$

where "S" is the percent decrease in original pile height "h" under load "m" for the fabric containing "N" fibers (per unit area) of denier "d". "k" and "C" are constants, the former representing the slope of the straight

100% 3 DENIER, 2 1/2"
100% 12 DENIER, 2 1/2"
50% 3 DENIER + 50% 12 DENIER, 2 1/2"
COMPRESSION LOAD = 2 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
COMPRESSION LOAD = 8 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
COMPRESSION LOAD = 2 Gm/Cm²
ORIGINAL PILE HEIGHT = 5/8"
COMPRESSION LOAD = 8 Gm/Cm²
ORIGINAL PILE HEIGHT = 5/8"
COMPRESSION LOAD=2 Gm/Cm²
ORIGINAL PILE HEIGHT=3/8"
COMPRESSION LOAD=8 Gm/Cm²
ORIGINAL PILE HEIGHT=3/8"
PERCENT OF ORIGINAL THICKNESS OF FACE
WEIGHT OF FACE (OZ/YD²)

Figure 6
Change of pile height as a function of pile weight at various loads

100% 3 DENIER 2 1/2"
100% 3 DENIER 1 1/2"
100% 3 DENIER 1 1/2" + SOFTENER
COMPRESSION LOAD = 2 Gm/Cm²
ORIGINAL PILE HEIGHT = 7/8"
COMPRESSION LOAD = 8 Gm/Cm²
ORIGINAL PILE HEIGHT 7/8"
COMPRESSION LOAD = 2 Gm/Cm²
ORIGINAL PILE HEIGHT = 5/8"
COMPRESSION LOAD = 8 Gm/Cm²
ORIGINAL PILE HEIGHT = 5/8"
COMPRESSION LOAD = 2 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
COMPRESSION LOAD = 8 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
PERCENT OF ORIGINAL THICKNESS OF FACE
WEIGHT OF FACE (OZ/YD²)

Figure 7
Change of pile height as a function of pile weight at various loads

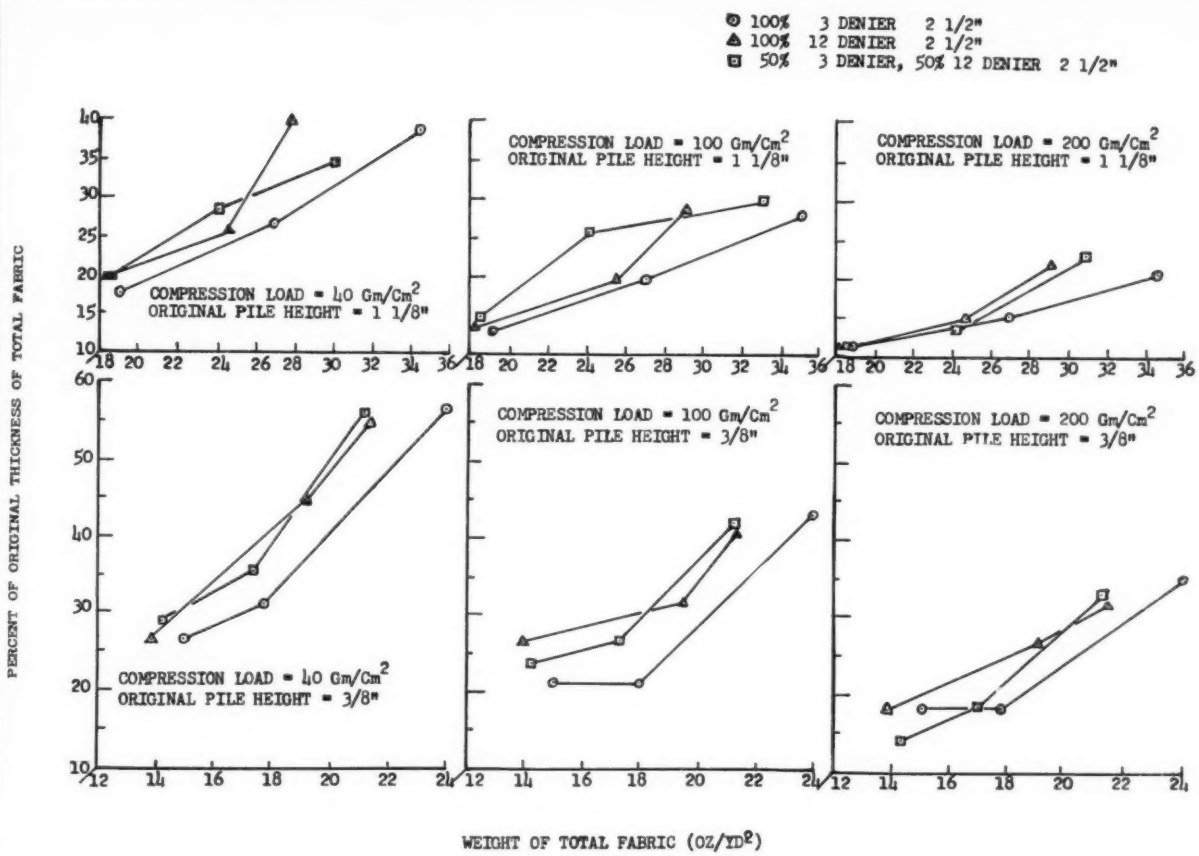

100% 3 DENIER 2 1/2"
100% 12 DENIER 2 1/2"
50% 3 DENIER, 50% 12 DENIER 2 1/2"
COMPRESSION LOAD = 40 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
COMPRESSION LOAD = 100 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
COMPRESSION LOAD = 200 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
COMPRESSION LOAD = 40 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
COMPRESSION LOAD = 100 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
COMPRESSION LOAD = 200 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
PERCENT OF ORIGINAL THICKNESS OF TOTAL FABRIC
WEIGHT OF TOTAL FABRIC (OZ/YD²)

Figure 8
Change of pile height as a function of weight of total fabric

line obtained by plotting "S" vs the difference between the logarithmic terms as shown in Equation 4.

Figure 10 shows the data obtained from this equation plotted against the actual deflection for fabrics of different pile heights, denier weights and blends. These include all the data for loads of four, eight and 40 g/cm² in this investigation, omitting only the five points which occurred at deflections below 20%. Three of these points were erratic with respect to deflection. It appears that at very low loads it is difficult to obtain accurate compression data because any slight "lay" in the pile seriously influences the results.

Over a considerable range, the plot of S against $\log\left[\frac{h\sqrt{m}}{N\,d^{1.2}}\right]$ yields a good straight line, but for very high loads there is a deviation indicating that the fabric no longer behaves as if its pile height can be considered the same as it was at no load. In other words, at higher loads "h" becomes a function of "S". By considering the pile height to be an average of its height before compression, and height at load "m", the above equation was obtained.

It should be noted that, at compression loads of 40 gm/cm², it becomes necessary to consider the total thickness of the fabric (face plus back) and the total weight of fibers in the pile. If the face only is considered, as is desirable at lower compression loads, then the data fall outside the group shown in Figure 7.

SIGNIFICANCE OF THE COMPRESSION EQUATION —— The equation tells us that the deflection or compression of a pile fabric is:

1) directly proportional to the log of the height of the pile
2) directly proportional to log of the square root of the applied load
3) inversely proportional to the log of the number of fibers
4) inversely proportional to the log of the $(\text{denier})^{1.2}$, or for a round fiber inversely proportional to the log of the $(\text{radius})^{2.4}$

While the original equation told us that the bending of a rod is inversely proportional to the $(\text{denier})^2$, we see that in a pile fabric the bolstering effect of adjacent fibers appreciably decreases the importance of denier.

These relationships are given graphically for various deniers, loads and pile heights, in Figure 11. Perhaps the most obvious aspects of these curves are a) the minor influence of denier at very high compressive loads, and b) the deflection is least for heavy fabrics of low pile height.

An interesting problem concerns the quantitative evaluation of fabrics which consist of blends of more than one denier. Because of the complicated nature of Equation 4, it is difficult to determine the contribution of each component. Electrical analogies were explored, such as behavior of resistances in parallel or series, but these were not applicable. Inspection of the curves shows that the blend of three- and 12-denier fibers behaves almost like the 100% 12-denier blend. Indeed, calculating the values in the compression equation anywhere over the range six to 12 denier gave points in Figure 10 which fell between the

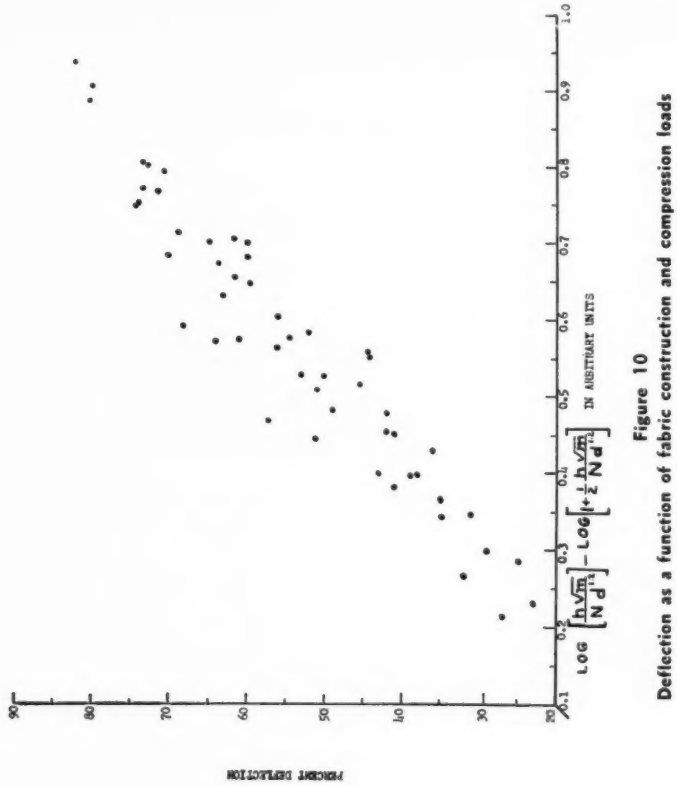


Figure 10
Deflection as a function of fabric construction and compression loads

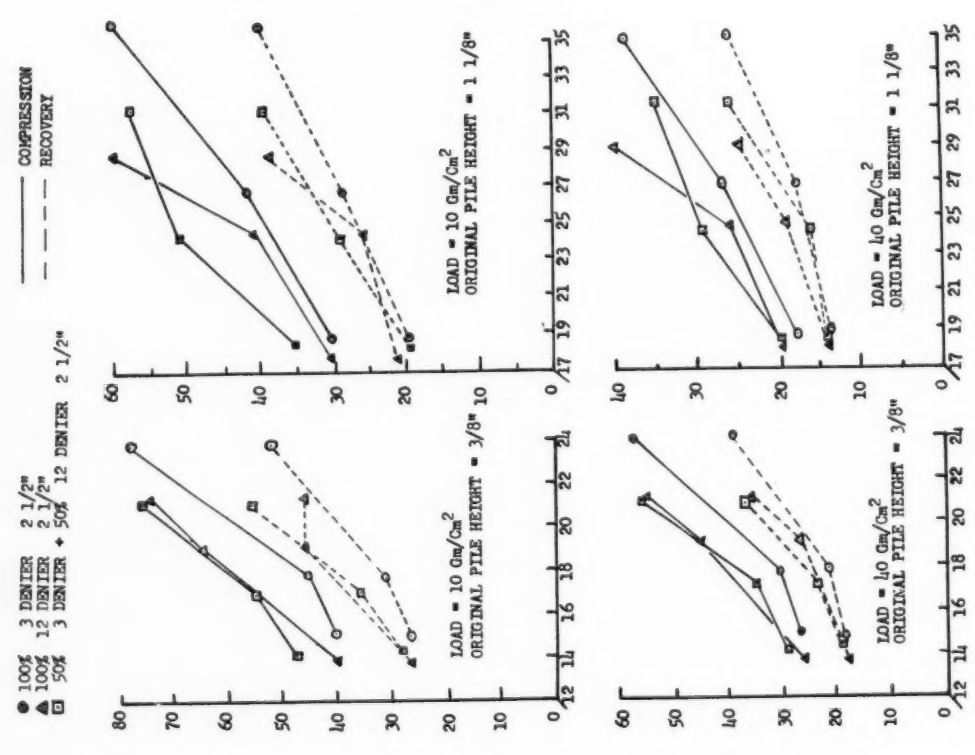

● 100% 3 DENIER 2 1/2"
▲ 100% 12 DENIER 2 1/2"
□ 50% 3 DENIER + 50% 12 DENIER 2 1/2"
——— COMPRESSION
– – – – RECOVERY
LOAD = 10 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
LOAD = 10 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
LOAD = 40 Gm/Cm²
ORIGINAL PILE HEIGHT = 1 1/8"
LOAD = 40 Gm/Cm²
ORIGINAL PILE HEIGHT = 3/8"
PERCENT OF ORIGINAL THICKNESS OF FABRIC
FABRIC WEIGHT (OZ/YD²)

Figure 9
Compression and recovery

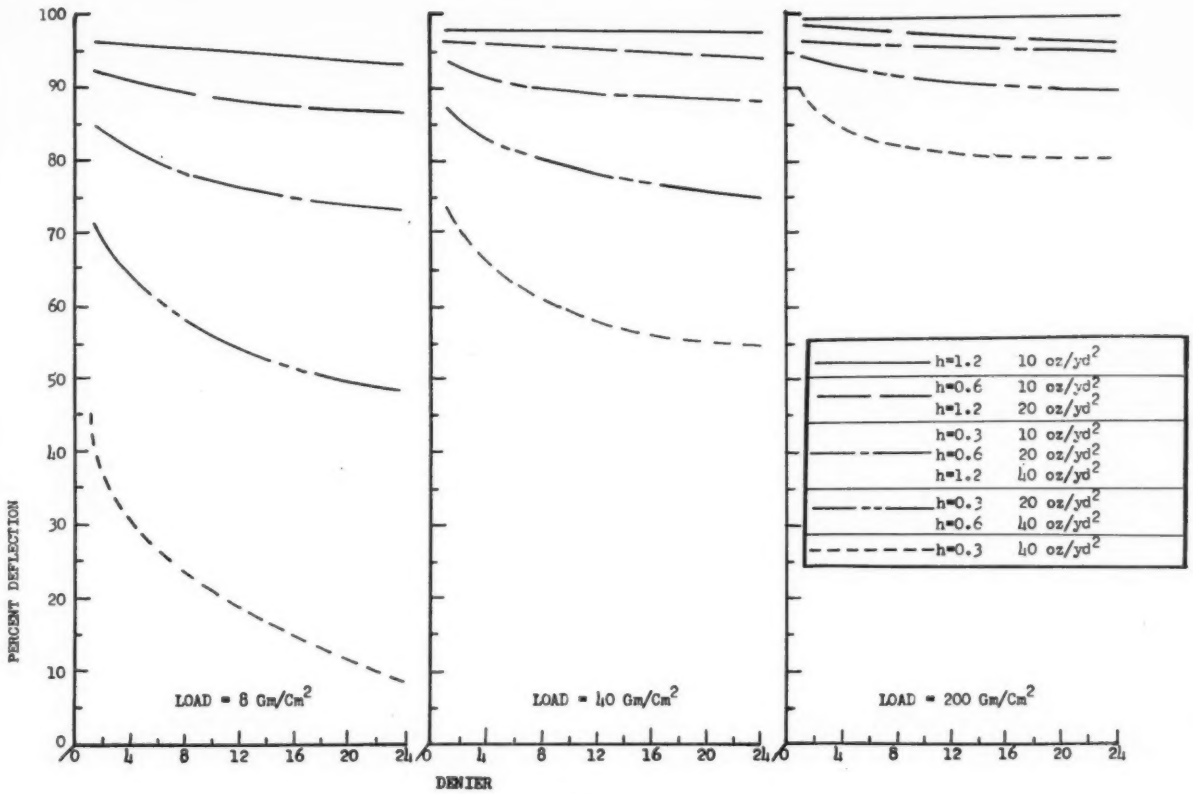


Figure 11
Percent reflection as a function of denier

scatter of points for the fabrics consisting of 100% three-denier and 100% 12-denier fibers. Actually, a fabric consisting of six-denier fibers is closer, in resistance to compression, to a fabric of 12 denier than it is to one of three denier:

$$\log 3^{1.2} = .573;$$
$$\log 6^{1.2} = .933;$$
$$\log 12^{1.2} = 1.29.$$

While there is no easy way to predict the behavior of blends of fine and coarse fibers, results indicate that the coarser components contribute much more than their share to the compressional resistance. It should be noted that this occurred in our fabrics in spite of the fact that there were four times as many three-denier fibers as there were 12-denier fibers, which is the case for a 50% blend by weight.

TUFTING AND MATTING OF PILE FABRICS——One of the problems in all pile fabrics is a tendency for the groups of fibers to become entangled or to tuft, resulting in poor appearance (7,8). A variety of pile fabrics was examined to determine some of the characteristics of tufting and matting. It was found that the tufting started at the surface of the fabric and, as it progressed, it worked its way toward the base. We could find no evidence that tufting originated because of static charges or other factors which may cause the fibers to entangle all along their length.

In order to investigate this more fully, we performed various types of abrasion tests, but with these tests no consistent results could be obtained. By far the test which best simulated observations made on fabrics in use was obtained from a relatively simple method consisting of tumbling the fabrics in a dry state in a washing machine. Dry tumbling was found to be superior to wet tumbling and had the advantage that the fabrics could be removed from time to time and the rate of change observed. In this way the fabrics were tumbled for a total of four and one-half hours and examined periodically. There was no easy way to quantitatively describe this effect, but by laying out these fabrics and by comparing the degree of clumping, we were able to make a qualitative evaluation. The results can be summarized as follows:

1) Pile height is probably the most important factor in tufting. Changes which showed dramatically in the fabrics of 1⅛" pile height were very slight at ⅜".
2) The weight of the fabric is another important consideration, but for the fabrics of ⅜" pile height, the difference was slight. At ⅝" the difference became greater and at 1⅛" the heavier fabrics are definitely superior to the lighter ones.
3) The effect of denier as compared to pile height and weight was slight. Nevertheless, differences could be detected: fabrics prepared from 100% three-denier showed the greatest change, the blend of three- and 12-denier the next, and 100% 12-denier showed the least change.
4) Fiber length, softener and heat setting resulted in minor differences which are not considered significant.

In a similar series of tests there was incorporated soiled fabrics which contained a considerable quantity of lanolin. Although the presence of lanolin slightly aggravated the tufting at the surface of the pile and made sharper "pyramids", the trends were identical with those obtained without the lanolin present.

Figure 9
Compression and recovery

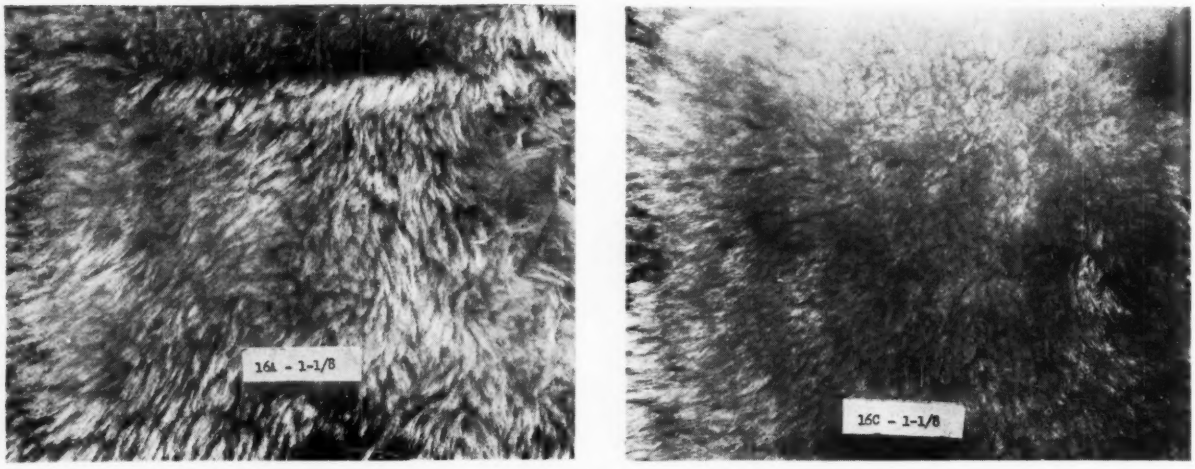


Figure 12
Photos of two of the Committee's fabrics indicate degrees of tufting obtained with two fabrics which were quite similar in construction, except that the one on the right was much heavier than the other

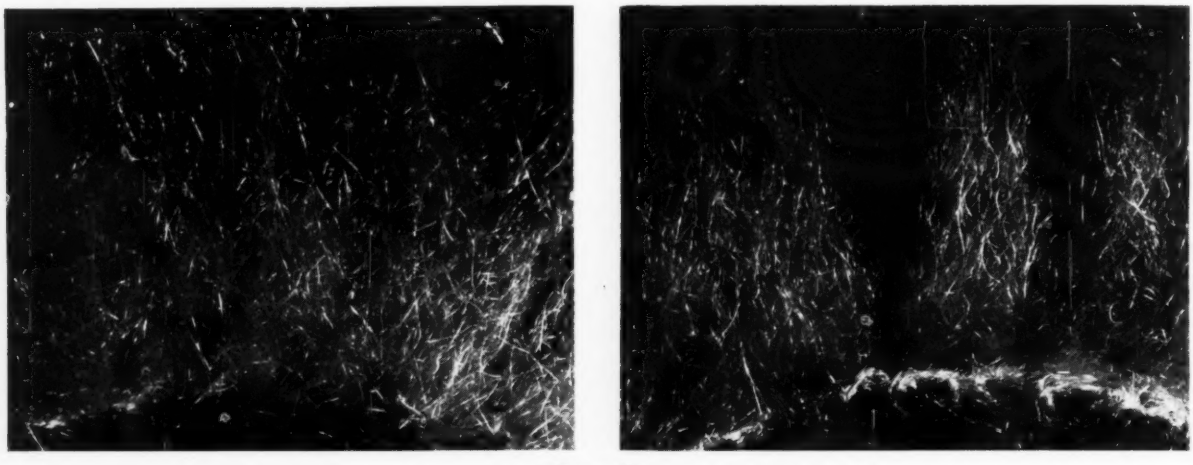


Figure 13
Cross sections of pile fabrics before and after tufting (extreme case)

SUMMARY

1) Forty-one pile fabrics were prepared varying in weight, denier, softener and pile height.
2) Where there is a random distribution of fiber lengths in a pile, the weight of the face portion can be determined:

$$W = W_1\left[1-\left(\frac{L-t}{L}\right)^2\right]$$

where "W" is the weight of the face, "W_1" the weight of the face before shearing, "L" the initial length of the fibers and "t" the height of the pile after shearing.
3) In a pile fabric:

$$\text{Density of Total Fabric} = a\,(\text{Density of Face}) + b$$

Where "a" is the slope and "b" the intercept on the abscissa. "b" is a constant which describes the contribution of the back to the total density and is, therefore, a measure of fabric "efficiency".
4) The compression data showed qualitatively a) fabrics prepared from three-denier fibers were more easily compressed than those of 12-denier, while the 50%-50% blend of three- and 12-denier were quite similar to the fabrics prepared from 12-denier; b) the initial fiber length influences only the compressibility at high pile heights; and c) with the softener used, an increase in resistance to compression was obtained.
5) The compression data showed quantitatively that the percent decrease in pile height is proportional to:

$$\log\left[\frac{h\sqrt{m}}{N\,d^{1.2}}\right] - \log\left[1+\tfrac{1}{2}\frac{h\sqrt{m}}{N\,d^{1.2}}\right]$$

where "h" is the pile height before compression, "m" is the compression load, "N" the number of fibers per unit area in the fabric, and "d" the denier of the fibers.
6) Tufting and matting studies showed that a simple test consisting of tumbling dry fabrics in a washing machine reproduced tufting obtained in use. The following factors were shown to be significant for tufting in decreasing order of importance: a) pile height; b) pile weight; c) denier.

ACKNOWLEDGMENT

The Committee thanks Malden Ltd for the preparation of all fabric samples; Lowell Technological Institute and the Derby Co for use of their testing equipment; and Union Carbide Chemicals Co for the contribution of Dynel fiber.

LITERATURE CITED

(1) Anon, "Electrifying Emerges as Major Finishing Process for Pile Fabrics", *America's Textile Reptr, 33,* 108-9 (July 16, 1959).
(2) Shinn, W E, "High-pile Knitted Fabrics", *Knitter* (Jan, 1957).
(3) Anon, "Improved Knitting & Finishing Sparks New Fur Fabric Interest", *America's Textile Reptr* 11, 13, 47 (Jan 24, 1957).
(4) Kurowski, H B, "Use of Acrilan in Manufacture of High-pile Fabrics", *Knitted Outerwear Times,* 5 (Feb 3, 1958).
(5) Anon, "High Pile from Staple", *Textile Inds,* 199-204 (Feb, 1957).
(6) Long, Charles W, "Pile Fabrics for Insulation", Materials Laboratory, Wright Air Development Ctr, WADC Tech Report, 54-374 (June, 1955).
(7) Anon, "Simulated Fur Coats for Women", *Consumer Reports,* 423-7 (Aug, 1958).
(8) Lyle, D S, "Cleaning of Synthetic Furpile Fabrics", *Am Dyestuff Reptr 46,* 699-705 (Sept 23, 1957).
(9) Mizell, L R, Frishman, D, and Saxon, R, "Development of Noncritical Substitutes for Wolverine Fur", U S Quartermaster Textile Series Report No. 92 (Sept, 1956).

APPENDIX A

Weights, heights, and densities of fabrics

Weight when knitted (oz/yd²)		*Actual pile[d] height when finished (inches)*	*Weight when finished at heights indicated (oz/yd²)*		*Density (gm/cm³)[f]*	
Total[a] fabric	*Pile[b] only*		*Total[a] fabric*	*Face[c] only*	*Total[a] fabric*	*Face[c] only*
THREE-DENIER, 1½" PILE FIBERS; COTTON BACK						
24.5	19.3					
		0.87	20.6	10.1	0.030	0.016
		0.64	19.3	8.8	0.038	0.019
		0.41	17.4	6.9	0.052	0.023
42.5	37.3					
		0.88	35.5	21.6	0.052	0.033
		0.66	33.0	19.1	0.063	0.039
		0.42	28.2	14.3	0.082	0.046
THREE-DENIER, 1½" PILE FIBERS WITH ADDED SOFTENER, COTTON BACK						
25.2	20.0					
		0.88	20.4	9.8	0.030	0.015
		0.60	18.5	7.9	0.039	0.018
		0.38	17.2	6.6	0.054	0.023
35.1	29.9					
		0.90	29.2	16.7	0.042	0.025
		0.62	26.7	14.2	0.054	0.031
		0.43	24.5	12.0	0.069	0.037
THREE-DENIER, 1½" PILE FIBERS, DYNEL BACK[e]						
23.0	17.8					
		0.56	17.9	9.0	0.040	0.022
		0.40	16.4	7.5	0.050	0.025
THREE-DENIER, 2½" PILE FIBERS, COTTON BACK						
23.3	18.1					
		1.06	18.9	10.0	0.020	0.013
		0.60	15.6	6.7	0.033	0.015
		0.41	15.0	6.1	0.045	0.020
31.1	25.9					
		1.06	26.9	17.1	0.033	0.022
		0.60	20.9	11.1	0.044	0.025
		0.41	17.8	8.0	0.053	0.026
43.5	38.3					
		1.10	34.6	23.4	0.041	0.029
		0.62	26.4	15.2	0.054	0.033
		0.42	23.9	12.7	0.069	0.041
12-DENIER, 2½" PILE FIBERS, COTTON BACK						
21.5	16.3					
		1.07	18.2	9.5	0.022	0.010
		0.63	16.1	7.4	0.032	0.016
		0.41	13.8	5.1	0.041	0.017
32.0	26.8					
		1.04	24.5	14.6	0.030	0.019
		0.62	22.3	12.4	0.045	0.027
		0.40	19.1	9.2	0.058	0.031
37.0	31.8					
		1.06	28.8	18.3	0.035	0.023
		0.61	23.8	13.3	0.049	0.029
		0.40	21.2	10.7	0.065	0.036
BLEND, EQUAL WEIGHT, OF THREE-DENIER 2½" AND 12-DENIER 2½" FIBERS, COTTON BACK						
22.5	17.3					
		1.06	18.6	9.8	0.023	0.012
		0.62	16.2	7.4	0.033	0.016
		0.38	14.2	5.4	0.045	0.019
30.2	25.0					
		1.05	24.2	14.5	0.030	0.019
		0.61	20.8	11.1	0.043	0.024
		0.40	17.1	8.4	0.052	0.028
37.7	32.5					
		1.10	31.1	20.6	0.036	0.025
		0.64	26.1	15.6	0.051	0.033
		0.39	21.1	10.6	0.066	0.037

[a] includes pile fibers and cotton back and, in finished fabrics, backcoating
[b] pile, including that which is in back of fabric
[c] that portion of the pile above the back
[d] for total thickness of fabric add 0.04 inches
[e] heatset, not backcoated
[f] density at zero load

APPENDIX B

1) The change in weight ΔW at a height t is

$$\Delta W = A\, n\,(t)\, \Delta t$$

where A is a conversion factor; n(t) is $\frac{L-t}{L}$ or the fraction of fibers of initial length L at height t and

Δt = the change in pile height

2) or $\Delta W = A\left(\frac{L-t}{L}\right)\Delta t$

passing to the limit of very small Δt we obtain the differential equation and integrate

3) $$dw = A\left(\frac{L-t}{L}\right)dt$$

4) $$\int dw = \int A\left(\frac{L-t}{L}\right)dt$$

5) $$W = \int -A\left(\frac{L-t}{L}\right)d\,(L-t)$$

6) $$W = -A\frac{(L-t)^2}{2L} + C$$

At t=L, the second term is zero and W=C. Therefore, C is really the initial weight or W_I

7) $$W = -A\,\frac{(L-t)^2}{2L} + W_I$$

Note that at t=0, or when everything is sheared away, W=0. Thus, substituting t=0, we obtain

8) $$W_I = A\,\frac{L^2}{2L}$$

9) or $$A = 2\,\frac{W_I}{L}$$

Substituting A in equation 7

10) $$W = W_I - \frac{2\,W_I}{L}\left[\frac{(L-t)^2}{2L}\right]$$

11) $$W = W_I\left[1 - \left(\frac{L-t}{L}\right)^2\right]$$

1959 National Convention———

PROGRESS IN "WASH-AND-WEAR" WOOL*

JOHN F KRASNY and JOHN MENKART

Harris Research Laboratories, Washington, DC

Wool has many points in its favor in apparel use: comfort, pleasing hand, tailorability, sewability, and resistance to stains. It would be desirable to combine these advantages with the "automatic wash-and-wear" requirements of modern living. The present paper is an attempt to show where wool stands at present in the "wash-and-wear" field, and what problems need to be overcome for further progress.

Wool fabrics have a tendency to shrink by felting when subjected to mechanical action while wet; however, the recent models of washing machines which have settings for mild laundering to accommodate "modern fabrics" produce little shrinkage in compact wool fabrics even without a nonshrink finish. Such fabrics do not shrink to any serious extent in tumble drying, either. Most wool fabrics exhibit remarkable absence of mussing and wrinkling after washing and tumble drying—ie, they have a high "wash-and-wear" rating; however, in certain constructions there is a tendency to form surface fuzz.

A range of wool fabrics—all fairly compact, and in medium and heavy weights—has been shown to be "wash-and-wear" without any special treatment. A series of fabrics has been constructed to study the effect of structural factors in detail. Preliminary results indicate that, in lighter, more open structures, shrinkproofing and setting finishes, as well as proper construction, will be needed in order to obtain full "wash-and-wear" properties.

INTRODUCTION

IN this paper, the term *wool* refers to all-wool woven apparel fabrics intended for garments such as skirts, slacks, and sport skirts. *Wash-and-wear* means what has come to be called "automatic wash-and-wear", that is, machine washing in one of the modern domestic agitator machines by the "gentle" or "modern fabric" cycle—low temperature, short duration, slow agitation—followed by tumble drying. This is quite a severe application of the term since many items which have to be hand-washed and drip-dried are considered "wash-and-wear" by present standards. However, within the foreseeable future, with the rapid increase in the number of automatic driers in American homes, hand washing, or even machine washing and drip drying will hardly be an attractive feature to the majority of householders; it would be especially awkward and slow for the relatively bulky garments with high water imbibition, which are the subject of this study. For these reasons, it was felt that if wool is to make a break-through into the "wash-and-wear" apparel field, it will have to do it in the full sense of "automatic wash-and-wear".

The principal criterion for a "wash-and-wear" performance is that a garment should come through a satisfactory washing procedure with so little wrinkling as to be ready to use, needing at the most a small amount of ironing to make it wearable. There is, of course, another implied criterion, which is that the garment should be unchanged in every respect— dimensions, appearance, hand, and color —from the original state. In the case of the materials to which most of the "wash-and-wear" effect has been devoted so far, the main problem has been wrinkling, as is demonstrated by the fact that wrinkling or mussiness has become synonymous with "wash-and-wear" in the day-to-day terminology of the business. However, in some fabrics incorporating synthetic fibers, pilling has been an additional problem, and felting shrinkage and fuzz formation are difficulties specific to wool fabrics.

An investigation was begun in these laboratories about two years ago, under the sponsorship of the Wool Bureau, to clearly define and solve the problems involved in "automatic wash-and-wear" performance of wool fabrics and garments. In this paper, a brief summary is given of the findings to date concerning the severity of these problems and of ways of minimizing them; in the light of these findings, the prospects of wool in the field of "automatic wash-and-wear" are assessed.

METHODS AND MATERIALS

The methods used to evaluate the three "wash-and-wear" characteristics of wool fabrics, shrinkage, mussiness and fuzz formation in laundering, have been described in detail (*1, 5*). All fabrics were relaxed prior to laundering by immersion for one hour at room temperature in water to which a wetting agent had been added, and air dried. A Maytag home washing machine and tumble drier were used for the laundering of the fabrics, and after some experimentation, the following conditions were adopted:

Three lbs load in laundering and drying
Normal water level, "warm" temperature setting
Slow agitator and spinning speed ("Modern Fabrics" setting)
Three minutes soaping cycle
Tumble drying at "hot" setting until dry.

The shrinkage was measured by means of templates, and the mussiness was evaluated subjectively on a scale of 6 (perfectly smooth) to 1 (very mussy and wrinkled). The existing photographic standards were found to be inconvenient to use with these fabrics which differed widely in surface texture and color; descriptive, verbal standards were used in their place. Fuzz formation during laundering was also rated subjectively: the fabrics were draped at a bias over the edge of a vertical, back-lighted board, and their fuzz before and after laundering was compared with the five standards shown in Figure 1. Since some fuzz is often desired in wool fabrics, the difference in rating between the laundered and the original fabric, ie, the change due to laundering, was reported in all cases.

RESULTS AND DISCUSSION

The work was begun by an evaluation of some 70 commercial all-wool apparel fabrics, of which about 40 were studied in detail, to obtain some broad guide lines on the relation between structure and composition of the fabrics and "wash-and-wear" performance. Then, based on the results thus obtained, a series of 120 fabrics was manufactured for a more thorough and systematic investigation of those parameters which the first study had indicated to be important. This work is still in progress.

The observations to date are discussed below in terms of the three parameters of importance—shrinkage, mussing, and fuzz formation.

* Paper delivered before the 1959 National Convention of AATCC at Washington, DC.

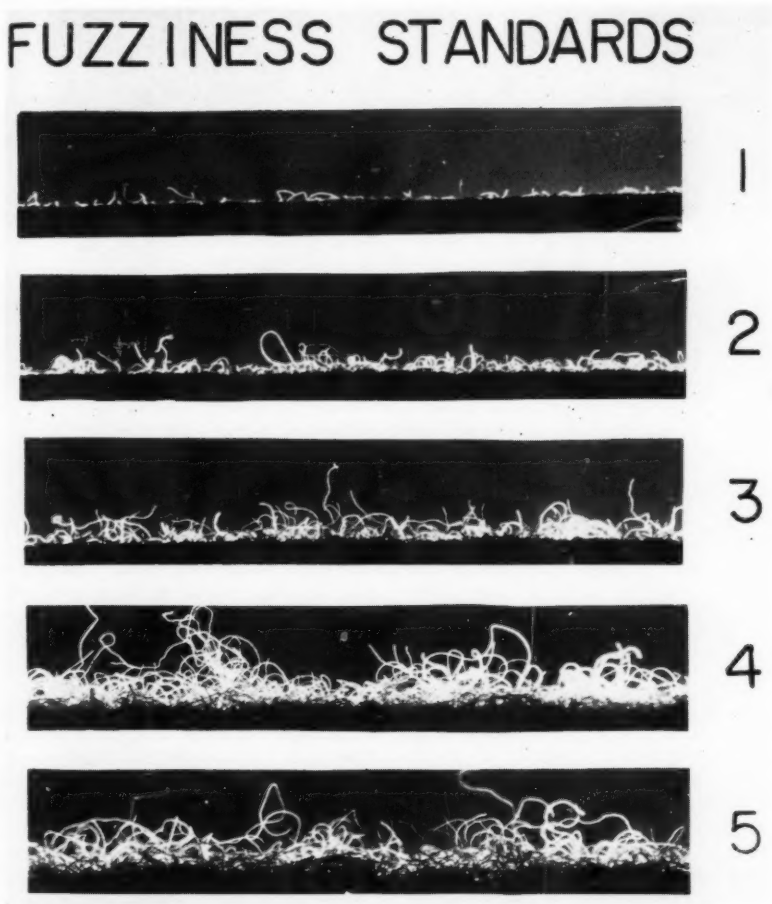


Figure 1

SHRINKAGE———A readily predictable problem in the case of wool is that of laundering shrinkage. Shrink-resistant treatments can alleviate it, but do not provide a universal solution (*8*). Indeed, the susceptibility of untreated wool to shrinkage has been treated so extensively in the literature that one might suspect wool to be unsuitable for machine washing. However, the published information on the shrinkage of wool materials in laundering has been obtained in commercial laundries, in old-fashioned domestic washing machines, in army mobile laundries and the like. Today, the modern washer, specifically designed to impart the minimum of mechanical work to the material, with controls over time and temperature, is available. It seemed likely that, at least, some untreated, all-wool materials might be able to withstand washing in such machines without serious shrinkage, although they are unsuited to the more severe washing systems.

Among the 40 commercial wool fabrics examined in the early stages of the work, the area shrinkage in 10 mild, "wash-and-wear" type launderings ranged from one to 48 percent. The surprising finding was that five of the 40 had an area shrinkage of four percent or less—or about two percent in each direction, which puts them in the same class as compressively shrunk cotton fabrics (*2*). None of these fabrics were claimed to be washable on the label or at their source of origin.

The above laundering shrinkage figures refer to the fabrics after relaxation in warm water. Had the relaxation shrinkage been included, the results would have been higher. However, this does not alter the picture. The principles which were utilized in the development of the Si-Ro-Set process for permanent creasing of wool fabrics (*3*) can be used not only to impart a stable crease, but also to stabilize the dimensions of a fabric in the flat state; therefore, the problem of relaxation shrinkage of wool fabrics may be considered as being on the way to solution.

In order to determine the causes of the wide variation in shrinkage, the fabrics were analyzed both for fiber composition and for their construction. No correlation of laundering shrinkage with the fiber properties—fiber fineness, length or crimp—was found; a more systematic analysis on several fabric series varying in one fiber factor at a time supported the conclusion that the contribution of fiber parameters to laundering shrinkage is at best minor, with coarser fibers resulting in a small reduction in shrinkage (*6*).

There was no easily recognizable relationship between shrinkage and any of the characteristics of the yarn —type (woolen vs worsted), count or twist—nor with fabric weight or weave. However, a good correlation between shrinkage and the fabric cover factor was found to exist, but this only held within each weave (Figure 2). This is understandable, because the cover factor is not a complete measure of fabric compactness. A fabric with a long-float weave can be woven to a higher cover factor than a similar one with a short-float weave. In other words, in two fabrics with the same cover factor but different weaves, the one with the longer float weave is farther away from the maximum weavable—more open —than the one with short floats. One can correct for this factor by considering instead of the cover factor, what has been called the "compactness ratio" (*2*), ie, the ratio of actual compactness to the maximum which can be woven with the given yarns and weave. These maximum values can be conveniently calculated from Love's graphs (*7*); when this is done, the curves for the different weaves on the cover factor vs shrinkage plot merge very satisfactorily into one line with little scatter (Figure 3).

It is quite remarkable that such a complex phenomenon as laundering shrinkage should be so closely related to such a relatively crude measure of fabric construction as the compactness ratio. This finding indicates again indirectly that other factors such as fiber properties, finishing routines, etc, may play only relatively minor parts.

More extensive analysis of construction variables on specially prepared fabrics (*6*) has confirmed that fabric design is the predominant factor in the laundering shrinkage of all-wool woven fabrics. It has begun to reveal, in addition, that construc-

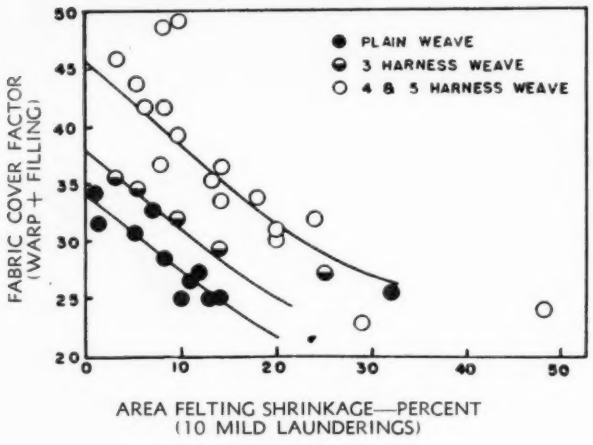

PLAIN WEAVE
3 HARNESS WEAVE
4 8 5 HARNESS WEAVE
FABRIC COVER FACTOR (WARP + FILLING)
AREA FELTING SHRINKAGE—PERCENT (10 MILD LAUNDERINGS)

Figure 2
Relationship of area shrinkage and cover factor of wool fabrics. From Bogaty, et al, Textile Research J 28, **733 (1958).**

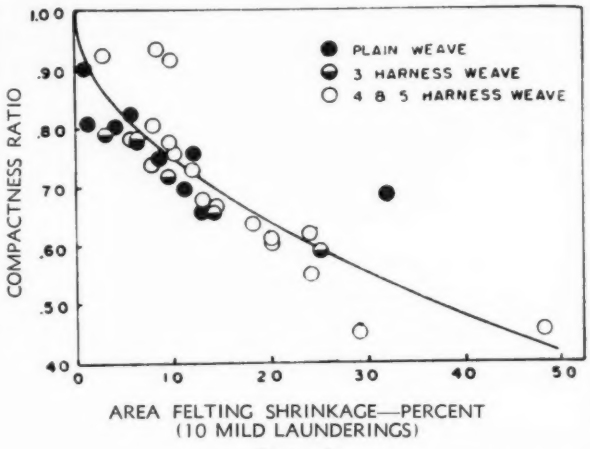


Figure 3
Relationship of area shrinkage and compactness ratio of wool fabrics. From Bogarty, et al, Textile Research J 28, **733 (1958).**

tion features other than compactness do have a significant effect; indeed, with proper attention to factors such as yarn number, twist, number of piles, warp and filling texture and weave, it is possible to obtain all-wool fabrics which are dimensionally stable in mild laundering and tumble drying in spite of having considerably fewer ends and picks than the maximum which can be woven.

The work is not yet fully completed, but one can say with confidence that the outlook is hopeful, and a fairly wide range of untreated all-wool fabrics can be made which withstand laundering in the mild routine of a modern home machine without significant shrinkage. As one departs further from high compactness, a light stabilization treatment may become necessary.

The data shown in Figures 2 and 3 were obtained in laundering of swatches with air-drying after spinning. The added mechanical work imparted to the material in tumble drying produces further shrinkage, but those fabrics which are dimensionally stable in laundering alone—having area shrinkage of four percent or less in ten cycles—do not shrink any more when tumble drying is added to the cycle (5). In that sense tumble drying does not introduce any additional difficulties.

Wool fabrics are known to continue to shrink with repeated launderings. It was found that shrinkage after 30 laundering cycles was about one and one-half to two times that after 10 cycles (5), so that an area shrinkage of two percent after ten cycles can be considered very safe, and four percent on the borderline. Limited tests indicate that the shrinkages of swatches and garments made from the same material are roughly comparable (5).

MUSSING———In general, mussing and wrinkling after laundering is less serious in fabrics made of wool than in either the cellulosics or the thermoplastics. Tumble drying generally gave better results than air drying after spinning, and the conditions of tumble drying were found to be not critical (5). For example, provided the material is dry when the dryer stops, it is not necessary to take it out immediately to prevent wrinkle formation. A number of wool fabrics have been found to exceed the rating "5", the best one available on present "wash-and-wear" scales, after tumble drying; a "6" rating—smooth—had to be added to the scale to accommodate such fabrics. Very few of the fabrics investigated thus far, which are satisfactory in shrinkage, fail on account of high mussiness after laundering. Mussing becomes somewhat more serious as the fabric weight is lowered (6).

FUZZ FORMATION———Most wool fabrics have some surface hairiness deliberately imparted in finishing; the average rating for the relaxed fabrics which have been studied is between 2 and 3 on the scale shown in Figure 1. The present work is concerned with the degree of departure from the original state caused by laundering, and therefore the data are reported as changes in rating rather than absolute values.

Fuzz formation in laundering often parallels shrinkage, in the sense that materials which have high laundering shrinkage also develop a lot of fuzz. The converse is not true, and some fabrics with low shrinkage exhibit quite high fuzz formation (5). As in the case of shrinkage, some fabric-construction variables have an important influence, and fuzz formation can be minimized by proper choice of yarn number and twist and fabric texture and weave (6). It can also be reduced by antishrinkage treatments such as chlorination (5); it may be that in some cases, when "wash-and-wear" wool fabrics are made, it will be desirable to apply an antishrink finish to control fuzz formation rather than shrinkage.

The fact that fuzzing can be reduced by chlorination naturally suggests that it is due to the same phenomenon as felting shrinkage—the migration of wool fibers to the root caused by the differential friction effect of the surface scales. This undoubtedly plays a part, but is probably not the whole story. Microscopic studies indicate that fuzz is formed largely by the snagging and plucking of fiber loops from the surface of yarns, much in the manner postulated by Gintis and Mead (4). Fiber migration probably accentuates the problem by promoting the formation of the loops.

TYPICAL RESULTS———Some of the points discussed above are demonstrated in Figure 4, showing the performance of eight commercial fabrics in automatic wash-and-wear in terms of the three critical parameters for wool—shrinkage, mussing, and fuzz formation. Swatches of each fabric were subjected to 10 cycles

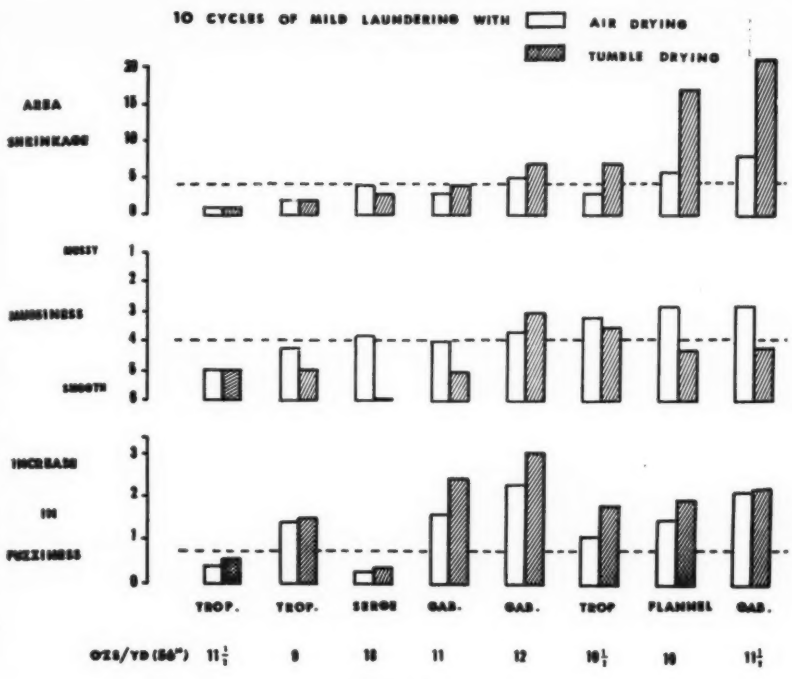


Figure 4
"Wash-and-wear" performance of eight typical commercial wool fabrics.

of either washing and air drying or washing and tumble drying. For all three properties the graphs are so arranged that the shorter bars represent the more desirable level, and dotted lines indicate what is considered the acceptable limit in each property (four percent area shrinkage; a mussiness rating of 4; an increase in fuzziness of 0.7 units). The selection of the acceptance limits was, of course, to some extent arbitrary, but the limited amount of service testing performed with several of the fabrics in the form of garments suggested that they are reasonable.

Four of the eight fabrics were either perfectly satisfactory or on the borderline in terms of laundering shrinkage. Tumble drying, as stated above, had a substantial addition effect only in the case of those fabrics which shrank considerably even in washing alone, and which consequently cannot be considered "wash-and-wear" in any case.

In terms of mussiness, three of these four low-shrinkage fabrics were satisfactory and one was on the borderline when laundered and drip-dried; when tumble dried, all four were perfectly satisfactory. In fact, the serge, which was previously on the borderline, had now acquired a rating of 6—perfectly smooth. Some of the high-shrinking fabrics also performed very respectably in terms of mussiness but this, of course, is not of practical intrest.

Two out of the four fabrics which passed the other two criteria fell down in fuzz formation. There were thus only two fabrics which fell within the acceptance limits in terms of all three properties. This situation, indicating that shrinkage and fuzziness are the two major problems, and mussing is much less serious (at any rate in medium and heavier weight materials) is quite a representative one for wool fabrics.

In order to appreciate properly the potential of "wash-and-wear" wool, one might look at this picture in another way. As already indicated, the 40 fabrics originally investigated were all commercial wool apparel fabrics, without shrink-resist or other stabilizing treatment, which were not intended by their designers and makers for applications involving laundering. Yet among them there were several fabrics, of which two in Figure 4 are examples, which appear to be very good candidates for "wash-and-wear" applications. It seems quite striking that some mills have apparently been making "wash-and-wear" materials, or something rather close to them, without ever realizing it. In the light of this observation alone, it seems reasonable to believe that, by proper attention to the fabric design, possibly in combination with appropriate finishes for setting, nonshrinking, and permanent creasing, a respectable range of all-wool "wash-and-wear" materials can be designed and produced. As previously indicated, systematic studies in our laboratories are bearing out this supposition, and beginning to provide the information which the designer will need. In fact, fabrics combining the comfort, pleasing hand, tailorability, sewability and resistance to stains of all-wool with "automatic wash-and-wear" properties seem to be in the offing.

REFERENCES

(1) Bogaty, H, and Harris, H E, *Am Dyestuff Reptr* 47, 369 (1958).
(2) Bogaty, H, Lourigan, G, and Harris, H E, *Textile Research J 28*, 733 (1958).
(3) CSIRO, Australian P Appl 29149/57.
(4) Gintis, D, and Mead, E J, *Textile Research J 29*, 578 (1959).
(5) Krasny, J F, Harris, H E, Lourigan, G H, and White, E D, *Am Dyestuff Reptr 48*, 18, 31 (1959).
(6) Krasny, J F, et al, unpublished results.
(7) Love, L, *Textile Research J 24*, 1073 (1954).
(8) Sookne, A M, *ibid 27*, 652 (1957).

AATCC Calendar

COUNCIL, COUNCIL COMMITTEES, RESEARCH COMMITTEES
Jan 21-22 (Hotel Sheraton-Atlantic, New York, NY); Jan 21—Council Committees and Research Committees; Jan 22 (AM)—ECR, TCR; Jan 22 (PM)—Council

NATIONAL CONVENTIONS
Oct 6-8, 1960 (Sheraton Hotel, Philadelphia, Pa); Sept 28-30, 1961 (Buffalo, NY); 1962 (Southern Region)

HUDSON-MOHAWK SECTION
Jan 15, Mar 27 (Chelsea House, Tribes Hill, NY); May 20 (Ladies Night); June 24 (Annual Outing)

METROPOLITAN SECTION
Jan 15, Feb 19 (Hotel New Yorker, New York, NY); Mar 18, Apr 22 (Kohler's Swiss Chalet, Rochelle Park, NJ); May 20 (Ladies Night—Swiss Chalet); June, 1960 (Outing)

NORTHERN NEW ENGLAND SECTION
Jan 15 (Joint symposium with ASME Textile Engineering Div, Woodlawn Golf Club, Newton, Mass)

PIEDMONT SECTION
Jan 22-23 (Poinsett Hotel, Greenville, SC); Apr 2-3 (Hotel Robert E Lee, Winston-Salem, NC); June 3-4 (Outing—Ocean Forest Hotel, Myrtle Beach, SC); Sept 23-24, 1960 (Hotel Charlotte, Charlotte, NC)

RHODE ISLAND SECTION
Jan 29 (Johnson's Hummocks); Mar 25 (Providence Engineering Soc); Apr 29 (Student Night); June 24 (Outing—Metacomet Country Club); Sept 23, 1960 (Management Night); Oct 28, 1960 (Providence Engineering Society); Dec 2, 1960 (Annual Meeting—Johnson's Hummocks)

SOUTH CENTRAL SECTION
Feb 7 (Hotel Patten, Chattanooga, Tenn); May 13-14 (Outing—Riverside Hotel, Gatlinburg, Tenn); Sept 10; Dec 9, 1960 (Hotel Patten, Chattanooga, Tenn)

SOUTHEASTERN SECTION
Feb 20 (Ida Cason Callaway Gardens, Pine Mountain, Ga); Apr 16 (Atlanta Biltmore Hotel, Atlanta, Ga); June 10 (Outing—Radium Springs Lodge, Radium Springs, Ga); Sept 17, Dec 3, 1960 (Atlanta, Ga)

Membership Applications

NEW ENGLAND REGION

NORTHERN NEW ENGLAND SECTION

Transfer to Junior

Shirish B Mehta—Colorist, Nyanza Color & Chem Co, Ashland, Mass. Sponsors: W E Lincoln Jr, R W Schernig.

WESTERN NEW ENGLAND SECTION

Transfer to Senior

Charles A Smith—Research chem, Monsanto Chem Co, Springfield, Mass. Sponsors: S H Foster, C R Williams.

RHODE ISLAND SECTION

Senior

Marguerita C Hindle — Chemist, Kenyon Piece Dyeworks Inc, Kenyon, RI. Sponsors: J W Timperley, F C Kinch.

Associate

Brian W Curtis—Asst treas, traffic mgr, Kenyon Piece Dyeworks Inc, Kenyon, RI.

Transfer to Senior

Alvin E Mitchell—Research chem, Bradford Dyeing Assoc (USA), Westerly, RI. Sponsors: J J Roarke, A F McLean.

CENTRAL ATLANTIC REGION

DELAWARE VALLEY SECTION

Senior

James F McGann—Senior dev chemist, Atlas Powder Co, Wilmington, Del. Sponsors: B N Baer, R A Olney.

John P Palko—Lab tech, Peerless Dyeing Co, Philadelphia, Pa. Sponsors: J A Clark, L K McChesney.

METROPOLITAN SECTION

Senior

David Biagi—Textile dyer, Nu Dye & Finishing Co, Paterson, NJ. Sponsors: P J Stefanacci, G R Decnyf Jr.

Mario A Cirillo—Dyer, Fair Lawn Finishing Co, Fair Lawn, NJ. Sponsors: F Tscheulin, W G Helmus.

Maurice E Renner—Chemist, Hart Products Co, New York, NY. Sponsors: S Cohen, T H Hart.

Junior

Richard M Axtell—Lab tech & sales trainee, Otto B May Inc, Newark, NJ. Sponsors: L C Gardner, C D Curtis.

Transfer to Senior

Howard M Sprock Jr—Rep, tex chemicals dev, B F Goodrich Chem Co, Cleveland, Sponsors: L L Shailer Jr, N H Sherwood.

NIAGARA FRONTIER SECTION

Junior

Paul A Harrington—Textile chemist, Becco Chem Div, Food & Machinery & Chem Corp, Buffalo, NY. Sponsors: J M Ross Jr, N Weinberg.

SOUTHERN REGION

PIEDMONT SECTION

Senior

Dimitri D Dellis—Chemist, tex dev, Union Carbide Chem Co, South Charleston, West Va. Sponsors: W R Martin Jr, D J Posten.

Alfred S Fillippeli—Dir res & dev, United Piece Dye Works, North Charleston, SC. Sponsors: K T Louis, W H Wadsworth.

Harry R Holt—Salesman Para-Chem Southern Inc, Greenville, SC. Sponsors: D W Robinson, H A Stauderman.

Richard H Kennette—Textile night supt, finishing plant, Ware Shoals Div, Riegel Textile Corp, Ware Shoals, SC. Sponsors: J H O'Neil, J C Cavin.

Maynard J Kirby—Supt of cotton div, Old Fort Finishing Co, Old Fort, NC. Sponsors: R J Lyons, T Carter.

Henry B Murdock—Overseer dyeing, Riegel Textile Corp, Ware Shoals Div, Ware Shoals, SC. Sponsors: G R Thompson, G M Kidder.

Charles E Pratt—Chemical sales & dev, Chem Div, General Mills, Inc, Charlotte, NC. Sponsors: R E Rettew, I S Hurd.

Junior

Mary A Ward—Asst technician, Dow Chem Co, James River Div, Williamsburg, Va. Sponsors: J Moore, A R Wirth.

Associate

William A Moley—Sales, Diamond Alkali Co, Memphis, Tenn.

SOUTH CENTRAL SECTION

Senior

Jack G Ellis—Dyer, Nation Hosiery Mills Inc, Chattanooga, Tenn. Sponsors: E S Johnson, W Martin Jr.

Ray L Nation—Mgr, Nation Hosiery Mills Inc, Chattanooga, Tenn. Sponsors: E S Johnson, W Martin Jr.

Junior

George H Corn—Tech sales, Manufacturers Soap & Chem Co, Cleveland, Tenn. Sponsors: J A Watt, R S Steele.

Thomas W Woolsey—Tech asst, Fabrics Div, United Hosiery Mills Corp, Chattanooga, Tenn. Sponsors: F Laferry, A E Culp Jr.

SOUTHEASTERN SECTION

Senior

William E Glasscock—Vice pres, Katherine Rug Mills Inc, Dalton, Ga. Sponsors: E S Johnson, W Martin Jr.

Melvin B Hopkins—Supt, Cherokee Dye Co, Calhoun, Ga. Sponsors: J B Cleveland, M S Morrison Jr.

Transfer to Junior

Samuel H Swint Jr—Trainee, Graniteville Co, Graniteville, SC. Sponsors: G R Thompson, G M Kidder.

WESTERN REGION

MID-WEST SECTION

Senior

William R Daub—Foreman in dyehouse, Morgan Dyeing & Bleaching Co Inc, Rochelle, Ill. Sponsors: J L McGowan, F J Connolly.

Associate

Mary D Schlaub—Teacher, clothing & textiles, Mundelein College, Chicago, Ill.

Transfer to Senior

Ernest Larrat Jr—Salesman, Rohm & Haas Co, Philadelphia, Pa. Sponsors: H F Lawton, R G Thomas.

Transfer to Junior

Alastair W Hunter—Supv Dyestuff Application Lab, National Aniline Div, Allied Chem Corp, Chicago, Ill. Sponsors: E J Sindt, R B Lueg.

PACIFIC SOUTHWEST SECTION

Associate

Mary R Nollman—Stylist, Horace Heidt's Magnolia Estates, Van Nuys, Calif. Sponsors: W F Wigglesworth, E B Lindquist.

STUDENT CHAPTER

LOWELL TECHNOLOGICAL INSTITUTE

Herbert Zaritsky—Student, Lowell Technological Inst, Lowell, Mass. Sponsor: G R Griffin.

UNCLASSIFIED

Senior

Robert Hansen—Company managing dir, Chemische Fabrik Grunau, AG, Illertissen, Bavaria, Germany. Sponsors: G R Thompson, G M Kidder.

Transfer to Senior

Norman T Rassie—Chemist, Arida Bros Corp, SA, Tripoli, Lebanon. Sponsors: G R Thompson, G M Kidder.

MILAN INTERNATIONAL TEXTILE MACHINERY EXHIBIT

LEONARD H PLATNICK

Textile wet-processing machinery highlights of the Third International Textile Exhibition, held in Milan, Italy, in September, are covered in this article by the author, who is president of Regent Machinery Corp, 110 West 40th St, New York 18, NY. Mr Platnick concentrated his attention, for the purposes of this article, on new developments.

THE Third International Textile Exhibition, which took place in Milan, Italy, Sept 12-21, proved to be the most outstanding to date. It was a complete showcase of machinery which vividly illustrated the most advanced thinking of manufacturers of European dyeing and finishing machinery.

The main trend in the dyeing and finishing sections was toward machines which allowed for continuous processing, allowing numerous operations to be carried out in a single sequence, thus eliminating excessive use of labor by the removal of costly materials-handling operations and batch-type operations. European manufacturers are achieving this by the wide use of electronic equipment in automatic stop motions, guiding devices, tension controls, automatic compensating devices, infinitely variable speed drives, automatic lubricating systems, etc.

Another important consideration is intensive research on the part of the machinery manufacturers. Because competition between manufacturers is extremely intense, they must be constantly striving to improve their existing machines in order to maintain a competitive position. At the same time, they strive to create machinery using principles never before used in textile dyeing and finishing machinery.

The European dyers and finishers are now confronted with the situation of rising costs in raw materials and labor, plus Far Eastern competition, which their American counterparts have lived with since the end of World II.

The machinery which is of the most interest for the American market is as follows: continuous top and tow dyeing machines, high-temperature and pressure beam dyeing machines for knitted and woven material, automatic screen printing machines from six to 14 colors, forced washing machines, continuous sodium chlorite bleaching ranges, chainless mercerizers, high-temperature and pressure dye jig, skein mercerizing machines, continuous semidecating machinery and shearing machinery.

Brief descriptions of some of the outstanding exhibits follow.

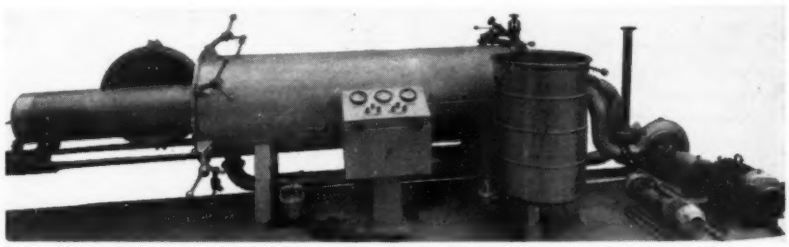
ILMA* (*Schio, Italy*) exhibited a completely new unit for the continuous dyeing of wool tops, Orlon, Acrilan, nylon, polyester, top and tow. For wool tops, acid, chrome, and top-chrome colors can be used. Orlon is dyed both by disperse and basic dyestuffs. This unit not only dyes the top, but it applies finish to synthetic fibers and dries. For wool tops, it is complete with backwashers. Continuous vigoreaux printing and aging can also be done in this unit.

The T/TSP3 beam-dyeing machine exhibited by ILMA, is a three-beam, pressurized, high-temperature machine for open-width or tubular fabrics. It is suited for synthetics, cotton and wool. It is fully automatic, with time and temperature controls. Flow of liquor is inside out and outside in, so as to insure complete penetration and uniform dyeing. This machine is also manufactured in a single-beam unit.

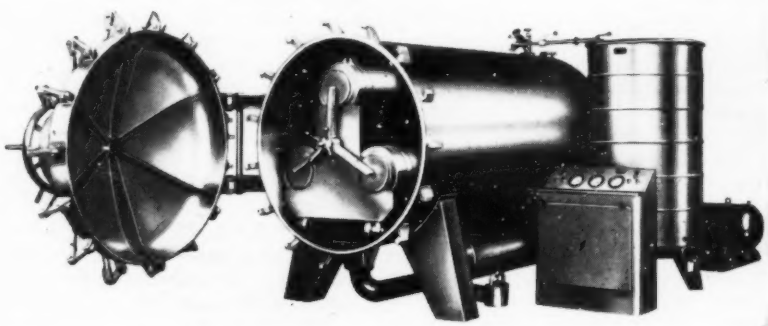
FRITZ BUSER (*Wiler, Switzerland*)———introduced a new, fully automatic screen-printing machine named Hydromag II, which, the manufacturer claims, has a production rate of 350-1000 yards per hour. This machine is available in four widths and varying lengths. The machine offers a repeat possibility between 20-118 inches. Register is controlled by a magnetic-hydraulic arrangement to a reported accuracy of 0.2 mm.

MECCANOTESSILE (*Como, Italy*)———A newer automatic screen-printing machine was exhibited by this manufacturer. It is claimed that many new features are incorporated into this unit, including a double-feed cylinder, which feeds and presses the material on to the gummed blanket. The number of passages of the squeegee can be regulated from one to four times, even during operation of the unit. If required, each screen can have a different number of squeegee passages. The squeegee has a double blade. One is always out of action. The pressure of the squeegee can be regulated as well as the angle. The machine will handle six to 14 colors. The accuracy of the repeat is ±0.2 mm.

Meccanotessile also exhibited a skein mercerizing machine and a skein washing machine. The mercerizing machine is fully automatic, reportedly producing approximately 1100 lbs per eight hours. It is claimed that minimum floor space is required, and that one man can operate the unit. The skein-washing machine works on the counter-current principle. There are eight sections: three to acidify, three to wash, one to squeeze, and one to load. Production is said to be approx 500 lbs per hour.



ILMA T/TSP single-beam dyeing machine



ILMA T/TSP3 three-beam dyeing machine

*Represented in USA by Regent Machinery Corp

GEBR STORK & CO (*Amsterdam, Holland*) ——— The screen-printing machine exhibited by this firm was its basic machine with improvements stressed on a new cloth-feeding arrangement, a new control device for pattern repeats, and improved screen-adjusting blocks.

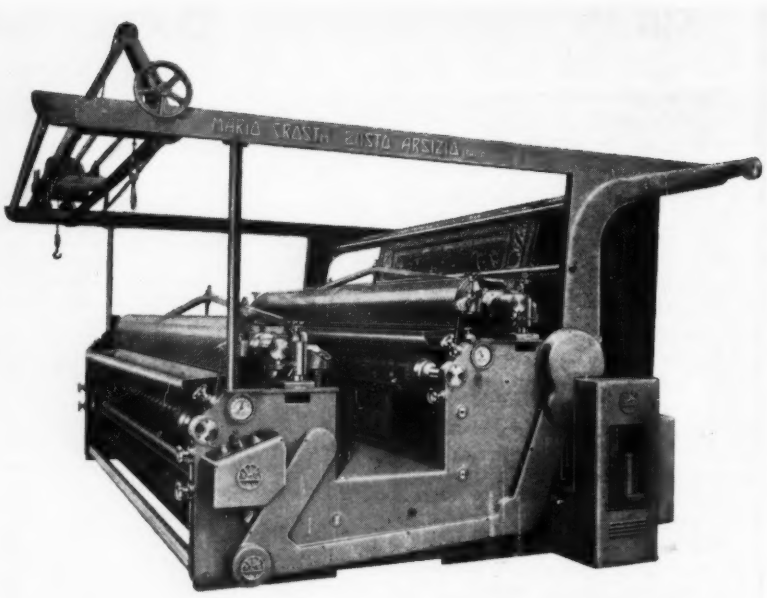
Stork also exhibited a three-unit Ropeomatic washer, which has a high washing capacity and is used for the aftertreatment of screen-printed fabrics; desizing, bleaching, etc. The material is carried through the baths in rope form.

REGGIANI MECCANOTEX SA (*Bergamo, Italy*)—A six-color automatic screen-printing machine was exhibited with new improvements. It has a printing width of 68″ and a repeat of 72″ with a maximum repeat of 144″. A special feature is a double squeegee with a special rocking axis which oscillates using one blade for each stroke on the screen. The angle and pressure can be changed during operation. Production is said to be 500-700 yards per hour for a six-color machine.

ARTOS MASCHINENBAU (*Hamburg, Germany*)—The Artos-Stoffel automatic screen-printing machine for printing with intermediate drying between different color processes was exhibited. The machine will handle up to 24 colors with an electronically controlled accuracy of 0.1 mm, it is claimed.

ZIMMERS ERBEN, KG (*Kufstein, Austria*)—An automatic screen-printing machine was also exhibited by this firm. Instead of mechanical means of passing the squeegee across the screen, a roller squeegee operates on electromagnetic pressure. The movement of this roller squeegee is by an arrangement of electro-magnets, which are moved hydro-mechanically. It has a printing width of 72″ and a pattern repeat of 80″. With a repeat of 20″ and minimum repeat cycle of four seconds, a maximum product rate of 500 yards per hour reportedly is achieved. With a repeat of 80″, production of 1000 yards per hour can be achieved, it is claimed.

SCHOLL AG (*Zofingen, Switzerland*)———This company introduced a two-machine unit for the centrifugal extraction of dye packages. This combination of machines is called the Secomat. After dyeing, the wet packages are taken from the carrier and manually placed in an inclined chute. At the bottom of the incline is a single-package extractor. After a predetermined extraction time, the package is automatically discharged from the extractor onto another inclined chute. These packages are then manually placed on to a spindle which, in turn, is loaded onto a material carrier which then is wheeled into a chamber dryer.



Mario Crosta CTD/P carpet shearing machine

JAKOB JAEGGLI & CIE (*Winterthur, Switzerland*)———This company exhibited its Coloras washing and neutralizing machine for mercerized yarns. This unit operates on the counter-flow principle. The manufacturer claims high production and complete neutralization with the ability to regulate the processing time, the flow of acid, the concentration of acid and yarn tension.

SAM VOLLENWEIDER, AG (*Horgan, Switzerland*) ——— This firm exhibited its Peerless TSC-2, which is a two-bladed vertical shearing machine having its own internal exhaust system. This machine has a variable-speed drive for cloth and shearing cylinders, with a control for the back brushes. This firm also exhibited the Imperial selvage machine, which removes all hanging selvage threads, including loops.

MARIO CROSTA* (*Busto Arsizio, Italy*) exhibited its carpet-shearing machine model CTD/P, which is constructed to handle carpets up to 26 feet in width. It has two cylinders, each with a hydraulic lifting device. This machine has micromatic adjustment of the cylinders, automatic seam-detecting devices and controls on four sides.

BENTELER-WERKE, AG (*Bielefeld, Germany*)———An open-width chainless mercerizing machine was exhibited by this firm, which claims production of 4,000-14,000 yards per one shift; single layer, one-lane principle. The stabilizing section of the mercerizer is complete with compensating rollers, which are automatically synchronized. The compensator rolls can be regulated to a pressure of 500 lbs on the fabric. The cloth runs with pre-selected tension, never losing contact with the surface of the rolls. The manufacturer claims that this method achieves an excellent mercerizing effect.

OMEZ* (*Bergamo, Italy*) exhibited a forced washing machine, which the manufacturer claims will replace three to four ordinary washing machines. The fabric is given four passes through a counter current tank. It then passes through a set of squeeze rolls with a pressure of 8,000 lbs. The fabric is then given two passes through the jet-spray section. A speed of 66 yards per minute is considered the average when using it for dyed, printed, bleached and desized fabrics.

PRETEMA LTD (*Zurich, Switzerland* ——— An automatic spectrograph for the visible spectral range, based on a new principle, was exhibited by this firm. Its outstanding features are fast and accurate color comparisons. Spectral energy data of radiators appear directly on the high-sensitivity oscilloscope screen. Color coordinates xyz according to the international color code are registered directly. The screen patterns can be easily recorded as a photograph or drawing .

*Represented in USA by Regent Machinery Corp

Abstracts

Impact of Wash-and-Wear on Cotton Agriculture

Hoffpauir, C L and Kopacz, B M, *Textile Bull 85*, 31-4, Sept, 1959

The last 20 years have shown vigorous advancements in technological fields of endeavor. This has been true in all phases of agriculture, and particularly true in the field of cotton technology. In varying degrees, cotton can be made mildew-resistant, water-repellent or water-soluble, flame- and heat-resistant, dimensionally stable, and of greatest import today, crease-resistant.

The rapid acceptance of the minimum-care or wash-wear concept is proof that its impact is tremendous. Actually, wash-wear as such was pioneered by the synthetic fiber manufacturers, and from their first announcement in the early 1950's drew considerable consumer interest. Most noncellulosics are hydrophobic and do not absorb water; therefore, when washed and hung up wet without squeezing wrinkles into them, garments made from these fibers will be fairly smooth after drying. As a consequence, dresses and uniforms made from these fibers became popular.

The cotton industry immediately began intensive research efforts to produce an all-cotton wash-wear product. For that purpose, cotton was resin treated specifically for minimum-care properties rather than dimensional stability.

Research in cooperation with industry and the National Cotton Council has demonstrated that excellent wash-wear garments with durable creases, capable of being laundered and dried mechanically, can be produced conveniently and inexpensively. The value of research in this field is emphasized by the estimate that 800,000 bales of cotton were used in 1958 which would not have been used but for the research development of wash-wear. This represents about 10 percent of total domestic cotton consumption. Census Bureau reports show that 1.1 billion yards of cotton fabrics were treated with resins for crease resistance in 1957. It has been estimated that four billion yards may be so treated in 1959.

Although much progress has been made, obvious problems still remain to be solved. The author lists some of the more important ones, including the development of improved fabric constructions particularly suited to wash-wear, and the establishment of standards that clearly describe the wash-wear qualities of the garment.

One of the handicaps that must be overcome is consumer resistance caused by exorbitant claims of promoters of inferior products.

Twelve references to the literature are cited.

•

Important Advance in Synthetic Fiber Dyeing (Procinyl Dyes)

ICI, *Man-made Textiles 36*, 120, Sept, 1959

The introduction by Imperial Chemical Industries Ltd of an entirely new class of disperse dyes, known as Procinyl dyes, brings the dyeing of nylon to the level of development already reached in the dyeing of wool and cellulosic fibers, making it possible to achieve standards of fastness and a quality of coloration previously unobtainable with nylon textiles, according to the author.

The initial four Procinyl dyes—a yellow, an orange, a scarlet and a blue—when applied to nylon and other polyamide fibers have the same attributes as the established disperse dyes, ie, they provide good leveling, good coverage of irregular-dyeing yarns, good compatibility in admixture, good temperature-range properties and good penetration. They are applied in a manner similar to other disperse dyes, the essential differences being that Procinyl dyes are applied initially under slightly acid (instead of neutral) conditions, and that dyeing is completed by an alkaline fixation stage. During this stage certain reactive groups in the Procinyl dye molecules react chemically and irreversibly with the amine or amide groups in the polyamide fiber and so produce dyeings of high wetfastness.

All forms of nylon and other polyamide fibers can be dyed satisfactorily with the new dyes, which may be applied on the jig (covered jigs for preference), on winches, in the paddle-dyeing machine or in circulating-liquor machines.

The new dyes appear to be of less interest on the other synthetic fibers (Procinyl Yellow G, however, dyes well on Terylene and Acrilan).

On acrylic fibers not modified by the incorporation of basic substances —such as Acrilan 16, Courtelle, Dralon, Orlon, etc—the Procinyl dyes display only a limited build-up, and interest here will be confined to the production of pale or pale-to-medium shades of high fastness.

•

Identification of Dyestuffs (on the Fiber)

Anon, *Pakistan Textile J*, 10, 77, June, 1959

A simple method of identifying the seven principal classes of dyes on cellulosic fibers is described:

1) Boil the dyed sample in water. Direct dyes bleed; azoic, sulfur, vat, basic and mineral dyes and Aniline Black are unaffected.

2) Boil the sample with 2% caustic soda and 2% hydrosulfite. Sulfur dyes change to yellow, brown or colorless; Aniline Black to brown; vat dyes exhibit marked color changes; direct and azoic dyes are decolorized.

3) Rinse the sample well and treat with warm H_2O_2. Sulfur, vat and basic dyes and Aniline Black regain their color; direct and azoic colors do not.

4) Treat a fresh sample with sodium hypochlorite. Most sulfur dyes (but not Hydron Blue and Indocarbon Black) are bleached, also basic dyes; Aniline Black turns brown (when boiled); vat dyes are unaffected.

5) (A special test for sulfur dyes). Boil a fresh sample in a solution of 5% $SnCl_2$ and 1% HCl in a test tube covered with filter paper moistened with lead acetate solution. A brown to black stain on the paper indicates a sulfur dye.

6) (A special test for mineral dyes). Boil a fresh sample in a mixture of 1% HCl and 1% oxalic acid. Mineral dyes are stripped. The metal can be tested in the solution.

•

The Uses of Acrylic Fiber Blends with Reference to Colorfastness

Edwards, H D and Jackson, N, *J Soc Dyers Col 75*, 383-4, July, 1959

Courtelle, manufactured by Courtaulds Ltd, is the acrylic fiber mainly referred to in this paper.

The main properties of acrylic fibers are medium strength with low strength-loss on wetting, low water-imbibition, high resistance to organic solvents, good dyeing properties, warm handle, and ability to recover from a high-temperature stretch. This last property is utilized in the production of high-bulk yarns, characterized by low density, soft full hand, and low weight. An outstanding property is the stability to repeated washing of acrylic blend fabrics.

End-uses for acrylic-fiber fabrics and blends are numerous. Blends of Courtelle and wool are used in women's and men's suitings. Courtelle in blends with cotton or Fibro finds uses in women's dresses and men's sport shirts. Courtelle is also used in jersey dresses and suits and women's knitted underwear.

In view of the stabilizing effect of acrylic fibers on fabric structure, its preservation of the original finished appearance, and their greater life, it is essential that their colorfastness be adequate for the end-use required.

All-Courtelle materials are dyed with disperse dyes for pale and medium depths and with basic dyes for deep colors. The acrylic fiber requires low washing temperature and moderate steaming conditions; hence the wetfastness of disperse dyes is generally satisfactory. Basic dyes have good build-up and wetfastness properties, but the choice of dyes may be particularly important; eg, certain combinations of yellow and blue dyes have poor off-tone lightfastness, and certain dyes such as the triphenylmethane greens have poor sublimation fastness on Courtelle.

In blends with wool for outerwear, washing conditions will not be drastic, and milling-type dyes on the wool with basic dyes on the Courtelle are adequate. Very good lightfastness is required and may be obtained in most colors, though browns may require careful dye selection.

Blends with cellulosic fibers, eg, shirtings, may be exposed to far more drastic washing conditions, and it is essential that adequate fastness be obtained. In pale colors, one-bath dyeing with disperse and direct dyes gives sufficient fastness. In dyeing heavy shades, the fastness of the direct color can be improved by after-treatments. Vat dyes would be better for the cellulosics, but the problem is one of expense.

For printing on all-acrylic fibers, melange printing with disperse or basic dyes on tow or top is suggested. Printing with vat dyes on Courtelle fabric gives excellent fastness, the lightfastness being better than on cotton in many cases.

●

Development of Yarn-dyeing Procedures for Nylon and Orlon Acrylic Fiber

Woodside, G E, *Can Textile J 76*, 43-4, Sept. 4, 1959

Over a period of years, yarn dyeing procedures for natural and regenerated fibers have been developed to a high level. The introduction of synthetic fibers, each with its own characteristics, meant that some of the accepted practices had to be modified to give the best results.

Spun yarns of nylon may be handled by means of skein or package dyeing, using the techniques which have proven successful with wool yarns. Filament nylon yarns, on the other hand, require special handling in order to give a satisfactory dyed yarn. Skein dyeing, except for heavy-denier twisted yarns, has not been popular because of the difficulties inherent in handling the finer yarns.

Early work on package-dyeing filament yarns indicated that the yarn had to be relaxed prior to winding it into a dye package, to enable the liquor to penetrate the packages. This process was expensive, and was later improved by winding the cake on a mandrel of such diameter that the yarn was free to relax during the dyeing operation.

The introduction of textured nylon yarns posed an additional set of problems to the yarn dyer. Normal package-dyeing methods tended to remove part or all of the yarn texture and elasticity. A method now known as "muff dyeing" was developed, in which the yarn is wound as a skein which, on relaxation, forms a soft dyeing package. This process, however, has its limitations, and an improved method has recently been developed.

Type 81 Orlon filament yarn could be satisfactorily package-dyed, but it required temperatures of the order of 250°F to develop a full range of shades. The recently introduced Type 82 yarn can be dyed satisfactorily at the boil.

The introduction of the high-bulk principle in spun yarns of Type 42 Orlon necessitated some modifications in normal skein-dyeing procedures. The low density of the fiber and the high bulk of the yarns made bottom sticks a necessity in the kettles of Hussong, Obermaier or Pegg type. Yarns containing regular shrinkage Orlon can be package-dyed with no significant modifications of standard procedures. High-bulk Orlon can be dyed successfully by winding an unsupported package having an inside diameter sufficiently large to permit complete relaxation of the yarn on the spindle of the dyeing machine.

A long question-and-answer period followed the presentation of this paper.

●

Polyolefin Fibers and Polymer Structure

Erlich, V L, *Textile Research J 29*, 679-86, Sept, 1959

The polyolefins (or, more restrictedly, the poly-alpha-olefins) are a growing family of polymers which comprise the straight linear polyethylene (or "polymethylene") and its derivatives. Their fiber-forming properties are based on the paraffinic backbone common to all these polymers; the derivatives can have an infinite variety of structures, and this has an extremely pronounced influence upon the fiber properties.

The higher poly-alpha-olefins have on every second carbon one hydrogen substituted by a side chain or branch, and the paraffinic chain forms the backbone of the molecular structure. Present polymerization chemistry and technique permit close control of these structures to a high degree of purity, and in turn the control of the fibers processed therefrom.

The length and distribution of the molecular chains, their stereospecific configurations, and the crystallinity and its degree are shown in their effect on the polyethylenes (low to high density) and on polypropylene, and future developments are foreseen.

The author emphasizes that the case of the polyolefin fibers is not that of "one more" synthetic fiber; the polyolefins may well become the classical example of the intricate relationship between molecular structure and fiber properties.

At present, commercial production of polyolefin fibers, polyethylene as well as polypropylene, remains confined to that of monofilaments as such, or in the form of multifilaments in gauges ranging from 2000 down to say 40 den, but mainly between 1000 and 300. Such relatively heavy gauges are used for industrial purposes, fabrics, ropes, etc.

Filament yarns of low textile deniers can be and have been made from linear polyethylene also, but the combination of high strength and excellent resilience as well as better processability is much more encouraging for polypropylene. These fibers lend themselves to desirable textile operations; they can be spun, crimped, textured, used for knitting, and for woven and nonwoven fabrics, either alone or, most promisingly, in blends with natural or other synthetic fibers.

One of the future developments of prime importance will be dyeing of these fibers, which at present are colored by pigmentation. Copolymers with dyeable and less hydrophobic side chains will be forthcoming sooner or later.

●

Phthalocyanine Dyes: Printing Difficulties

Ingamells, W, *Man-made Textiles 36*, 102-4, July-Aug, 1959

The author outlines the chemical principles involved in printing with

the Phthalogen and Alcian dyes. He notes that poor fastness on viscose but good fastness on cotton is obtained with some of these dyes.

The high concentration of dye in the printing paste can lead to excessive aggregation of the dye particles, which would make diffusion into the fiber mechanically impossible.

The author discusses the printing behavior of Alcian Blue 8G, a temporarily solubilized phthalocyanine dye. When this dye is printed on cotton and on viscose fabrics, cross-sections of the yarn, examined under the microscope, show that no diffusion has taken place on either fiber, and the dye is located entirely on the periphery of the fiber section. Cotton fibers appear to be covered with a film of color, while on viscose fibers the film apparently peels away from the fiber surface, and the color is localized in the depressions between the fibers.

This difference, the author says, reflects the difference in fastness to rubbing of the two fibers. On cotton the film is keyed onto the fiber surface, while the surface of viscose fibers appears to be unsuitable for its retention, and the color is easily removed by mechanical rubbing.

The only way to achieve penetration into viscose and improved fastness, according to the writer, appears to be to increase the initial dispersion of the dye by increasing the number of solubilizing groups per molecule, and when this is done, penetration into both cotton and viscose is obtained on printing.

•

Creaseproofing Agents for Wash-and-Wear Finishing

Nuessle, A C, *Textile Inds* 123, 116-27, Oct, 1959

The textile finisher of the present day is confronted with a large assortment of resins and reactants, each capable of imparting, to some degree at least, a wash-and-wear finish to fabrics made of cellulosic fibers. The purpose of this paper is to summarize briefly the properties of some of the many types of products that have been considered for this use, and to attempt to relate their properties to their chemical structure.

The author points out that a wash-and-wear formulation will usually contain four or more of the following ingredients: thermosetting resins or reactants, catalyst, softener, soft thermoplastic polymer, polyvinyl alcohol (or other water-soluble polymer), silicone emulsion, optical bleach, etc. Each of these materials contributes something to the overall finish. Nevertheless, the wash-wear effect depends largely on improved crease recovery, and as this is imparted primarily by the resin or reactant, the present paper is confined to that component of the finish.

The molecule of a creaseproofing rayon must be small enough to penetrate into cotton or rayon fibers. There, under the influence of the catalyst and heat, it undergoes a chemical reaction either with the cellulose or with itself (forming a polymer).

The author describes the following types of creaseproofing agents:

1) *N-Methylol Types.* This group includes the resin-formers and reactants composed of nitrogen bases chemically combined with formaldehyde: monomethylol- and dimethylolurea, dimethylol-melamine, dimethylol-ethylene-urea, dimethylol-ethylene-bis-triazone, dimethylol formamide, etc.

2) *Other Nitrogenous Types.* This group includes nonformaldehyde-containing products obtained from diisocyanates, cyanuric chloride, etc.

3) *Nonnitrogenous Types.* This group includes formaldehyde, glyoxal, α-hydroxy adipaldehyde, tetramethylol acetone, diethylene glycol acetal, and the epoxy resins.

Details of all of the above products are given, with their chemical formulas and their favorable and unfavorable qualities as creaseproofing agents. Sometimes a mixture of two different products is advantageous, in order to combine the best qualities of each.

The author discusses the factors influencing certain end-use properties (durability, strength loss, chlorine damage, fish odor, and the effect of the resin on the lightfastness of dyes). He concludes with the statement that no one compound is ideal for every end-use.

Twenty-one references to the literature are cited.

(This is one of the best articles on creaseproofing agents to date. It should be read in its entirety.)

•

Cotton Chemistry Makes Strides (New Water-repellent for Cotton)

Connor, C J, *Chem Eng News* 37, 46, Oct 26, 1959

A new silicone alloy has been developed to give excellent water repellency to cotton. It is an alloy of tetravinyl silane (TVS) and methyl hydrogen siloxane (MHS), polymerized simultaneously, using benzoyl peroxide as the catalyst. The reaction does not produce a copolymer, as might be expected, hence the use of the word "alloy".

By using this new compound on fabrics, it is possible to get spray ratings of 100 before and after boiling in a soap-sodium carbonate solution.

Ratings of some silicones used now drop after boiling; some make fabrics hard and uncomfortable to wear. These disadvantages do not show up when using the alloy, according to the author.

The TVS-MHS agent can be made into an aqueous emulsion using ethoxyolated oleamide as the emulsifier. It is easier to apply in this form, the author says. If a triazone resin is dissolved in the alloy, another advantage results: treated cloth resists creasing, in addition to water.

Other good features of the new alloy are the low curing time and temperature needed, and no discoloration of the fabric.

The best results are obtained when using TVS and MHS in a 1:5 ratio. Addition of a zirconium catalyst is also beneficial. Curing takes only five minutes at about 150°C.

•

Production of Fast Solid Shades on Cotton Piece Goods

Fox, M R, *Dyer* 121, 101-8, Jan 16, 1959

The author refers at the start to the steadily increasing fastness requirements for dyed goods, which now may include such items as fastness to resin aftertreatment, fireproofing and PVC coating. At the same time the dyer is faced by the necessity for greater economy and greater speed in filling orders, in order to keep up with his competitors.

The problem of covering "neps" (dead or immature cotton fibers) is discussed by the author, who states that the difference of depth of color on neps compared with mature fibers is partly due to an optical effect.

Mechanical abrasion of cotton piece-goods in localized areas can occur either prior to or during the dyeing process. The abraded fibers are more readily swollen in the dyebath than are the undamaged fibers, and absorb normally slow-dyeing dyes more rapidly. Thus, when dyes of widely different dyeing rates are used in mixtures, the damaged areas are plainly visible.

Both neps and abraded fibers in piece goods can be shown by use of the "red-green" dye test usually employed in testing dead cotton.

In dyeing with sulfur dyes, coverage of dead cotton is in general very good. Some of the azoic combinations show poor coverage, and with Procion dyes it is at best only moderate. Vat dyes present the most complicated picture; some are suitable for covering dead cotton, others are unsuitable without premercerization. Classification tables are included.

Tension differences in yarns within

fabrics and on fabrics themselves account for a vast array of dyeing faults in the application of fast dyes. The effect of irregular tensions produced in the processing of the goods on the dyeing of various vat, sulfur and Procion dyes is shown in tabular form.

The author stresses the importance of careful dye selection and of proper preparation of the fabric before dyeing. In particular, heavy fabrics must be completely desized. Mercerization before dyeing is recommended to smooth out differences of affinity in cotton blends, as well as to cover neps.

•

The Dyeing of Acrilan and Its Blends

Stump, W, *Can Textile J 76*, 43-5, Aug 7, 1959

One of the largest fields for Acrilan is in carpets, due to its outstanding resilience. Since most of the carpet fiber is stock-dyed, there are few dyeing problems, according to the author, who says, "All light and medium shades can be dyed very simply and easily with basic colors. Some of the medium shades can be dyed with premetallized colors, although in our own formulations we seldom recommend premetallized colors because we have never found them to produce the same lightfastness obtainable with basic colors. For black and dark navies, brown, or greens, we recommend chrome colors. We can also dye black with naphthols, using the so-called reverse diazo method."

Blankets are dyed with disperse dyes; or if the customer requires a washfastness of 120°F, basic dyes are recommended, using a urea method developed by the Chemstrand Corp, which is described. For very dark shades, premetallized or chrome colors are used.

Dyeing of jersey cloth and sweaters depends on the end-use. Disperse dyes are suitable for women's wear to be drycleaned. If the material is to be pleated, some disperse dyes have to be eliminated on account of sublimation. Most basic dyes are suitable for this kind of dyeing.

For printing, dyes must be carefully selected which will withstand steaming at pressures of 15 psi.

Acrilan blends well with rayon for all sorts of wash-and-wear fabrics. Dyeing and finishing of these blends is very simple.

Blends of Acrilan and wool for men's wear and women's wear has given trouble in the past, due to difficulty in dyeing. The author states that this difficulty has now been overcome by proper selection of wool dyes, grouping them according to their acid requirements. The Chem-Acril method of dyeing (in which certain cationic and nonionic compounds are added to the dyebath) is recommended.

Acrilan 16 is somewhat different from regular Acrilan, as it can be dyed only with disperse and basic dyes. By using a combination of the two Acrilans, two-color effects may be obtained.

A long question-and-answer period followed the reading of this paper.

•

All About Textured Nylon Yarns

Anon, *Modern Textiles 40*, #8, 37-44; #9, 35-6, 50, 54, 58, 60-1 (1959)

Textured yarns are made by putting a permanent crimp, loop, coil or purl into otherwise smooth continuous filaments. They may be of either the stretch, modified stretch, or bulk type.

The textured yarns are identified by a variety of trademarks. *Bulk* yarns include "Spunized", "Tetralized", "Ban-Lon", and "Taslan". *Stretch* yarns include "Helanca", "Fluflon", "Superloft", and "Agilon". *Modified stretch* yarns include "Saaba" and "Helanca" SW and SS. A table is included, giving the names of the owners of the various trademarks, the licensors, and the equipment used in producing each type of yarn.

The usual process for texturing nylon consists of a continuous operation in which the individual filaments of the yarn are displaced by mechanical distortion, the displacement is made permanent (eg, by heat-setting), and the forces causing displacement are removed (eg, by untwisting). By this treatment the yarn assumes permanent bulk and/or stretch characteristics, particularly after relaxation.

Full details are given of the variations in the process which yield the different types of texturing.

The author states that 12 million pounds of continuous filament nylon were modified into bulk and stretch yarns during 1956. Production jumped to 20 million pounds in 1957 and to 30 million pounds in 1958.

The key factors behind this industry-wide swing to textured nylon include its ability to stretch, to bulk, to look like spun yarn, and to give warmth without weight. Other advantages are an absence of pilling and broken filaments and greater durability.

Textured yarns combine the high abrasion resistance, strength and toughness of nylon with comfort, high thermal insulation, and satisfactory moisture-absorption properties, the author states. Fabrics made from the yarns are easy to wash and dry rapidly. They do not felt and can be made dimensionally stable.

Some of the numerous uses for textured nylon are in automobile upholstery, blouses, girdles, infants' wear, lingerie, men's shirts and underwear, swim suits, rugs and carpets.

•

Some Observations on Dyeing by the Cuprous-ion Method

Graham, D R and Statham, K W, *J Soc Dyers Col 75*, 452-5, Sept, 1959

As is well known, Orlon can be dyed with selected acid and direct dyes in the presence of cuprous ions. The uptake of these ions from solution by the fiber is very rapid. Because of this, and of the instability of cuprous compounds in aqueous solution, it is usual to produce the cuprous ions at a relatively slow rate by the reduction of cupric salts. The most promising reducing agents appear to be hydroxylamine sulfate, sodium bisulfite (alone or with glyoxal), and metallic copper (basis of the Sandocryl process).

In the case of reducing agents such as hydroxylamine sulfate, the rate of reduction of cupric salts to the cuprous state is rapid, and if all of the reducing agent is added initially, the concentration of cuprous ion becomes large enough to cause trouble in the levelness of the dyeing, and may cause precipitation of metallic copper on the fiber. To overcome this, it has been suggested that the reducing agent should be added gradually during the dyeing. The authors state that in the Sandocryl process also the production of cuprous ions is rapid enough to cause unlevelness.

In theory it should be possible to reduce the concentration of free cuprous ions in the solution by the addition of complexing agents to the liquor. Preliminary experiments showed that the addition of chloride and bromide ions, which can form complexes with the copper salt, gave more level uptake of cuprous ion by Orlon. Of a number of anions tested, sodium chloride gave the best results. It was found that approximately 7-8 percent of sodium chloride on the weight of the Orlon was required to give level dyeings.

It was not possible to show the beneficial effect of chloride ions on the cuprous-ion dyeing of Acrilan, as this fiber has good affinity for acid dyes without the use of this method of dyeing.

Previous work has shown that the presence of chlorides in the dyebath

is undesirable because of the retarding effect on the rate of dyeing, particularly for heavy shades (eg, blacks). In such cases, the authors state, the beneficial effect of chlorides in promoting level dyeing can be obtained by precoppering the Orlon in presence of chloride ions and then dyeing in a separate bath. Although this process gave satisfactory dyeings, the Orlon fabric shrank considerably, the shrinkage varying with the copper content of the Orlon. The absorption of dyes by the coppered Orlon also increased the shrinkage. The authors offer an explanation of this phenomenon.

Ten references to the literature are cited.

•

Vinal: Processing and End Uses

Hindle, W H, Papers AATT, *Modern Textiles 40*, 55-8, Nov, 1959

Polyvinyl alcohol is an extremely reactive material, particularly with a wide range of aldehydes, and a family of fibers with widely varying characteristics has been made commercially. In this paper, however, the author discusses only vinal staple and tow which has been treated with formaldehyde in a post-spinning operation.

PVA fibers as originally developed were water-soluble, but their reaction with formaldehyde, coupled with certain processing steps, renders them insoluble in boiling water. However, before these operations, the fiber is hot-water-soluble, and the material in this form is finding considerable interest in the nonwoven and paper fields in conjunction with the regular water-insoluble fiber. The price of vinal is $0.85 per lb.

The chemical resistance of vinal to alkalis and to many solvents, and to acids at low temperature, is high. The wet-softening temperature is 218°F, necessitating some care in drying operations.

When blended with cotton, vinal may be treated by the conventional cotton processes of bleaching and mercerizing.

Standard dyeing methods are used on vinal to give excellent fastness properties. Vinal may be dyed with selected direct, sulfur, vat, naphthol and neutral-dyeing premetallized dyes by methods currently used. Basic and disperse dyes may also be used but do not have good wash-fastness. Naphthols are applied by the technique usually employed with synthetics.

An outstanding feature of vinal dyeing is the high lightfastness that can be obtained, which in many cases is greatly superior to that which can be obtained on any other fiber, according to the author.

In finishing, cationic softeners are employed, and conventional resin treatments are used. Water-repelling processes are also carried out by the usual methods, except for the need of longer immersion times and lower drying temperatures.

Among the numerous end-uses listed are in knit goods for underwear, outerwear, and pile fabrics, also in the upholstery field. Vinyl cotton blends have uses in "wash-and-wear" fabrics. As already stated, the vinal fiber also has possibilities in nonwovens. In the industrial field it has various uses, eg, in ropes and fish-nets, tents, sewing thread and bicycle tire cords.

•

Vinal: What It Is, What It Can Do

Wells, R D, Papers AATT, *Modern Textiles 40*, 51-5, Nov, 1959

The generic term "Vinal", according to a Federal Trade Commission ruling, covers fibers containing at least 50 percent by weight of vinyl alcohol units and at least 85 percent in total of alcohol and acetal units. Polyvinyl alcohol fibers in the past have been commonly referred to as "Vinylon". For general chemical classification, "Vinal" and "Vinylon" may be considered to be synonymous.

"Vinal" covers a variety of fiber sub-types and modifications derived from several spinning and hardening processes. These are commercial products of the Kurashiki Rayon Co, serving as prototypes in a Vinal fiber program currently under study by the Air Reduction Chemical Co.

The two sub-types now under development and evaluation in this country are Vinal 5F, a wet-spun acetylated type produced in both staple and tow, and Vinal F0, made in the multifilament and monofilament form.

A table of the physical properties of Vinal 5F is included. This shows a tenacity range of 4.5 to 6.0 with retention of 80-85 percent in the wet state; a melting temperature of 420-450°F; a regain of 4.5-5.0 percent at 65 percent r h; and a sp gr of 1.28.

Vinal F0 at present is confined to tire-cord usage. It is a high-tenacity form (9 gpd in filament strength at 10 percent elongation, and over 7 gpd in strength of yarn).

The author compares the tensile and work-recovery data and the tenacity of nylon, Dacron, Vinal F0 and rayon at various elongations.

•

Zantrel

Hartford Fibers Co, *Textile Bull 85*, 40-1, Oct, 1959

Zantrel is a staple fiber, the result of extensive research in several European countries. It is described as a "polynosic" fiber. The word "polynosic" is assigned to a new form of man-made cellulosic fibers which differs from rayon in that the cellulose molecules forming the fiber are twice as long and are "more compactly spaced in a more homogeneous, orderly manner."

Limited quantities of this new fiber have been imported from Europe under the laboratory designation "Z-54". It is planned to begin production of Zantrel staple in this country in 1960.

Outstanding properties apparent in the wet fiber are high strength, low breaking elongation, high modulus and elastic recovery, and relatively low degree of water absorption. The outstanding chemical difference between Zantrel and rayon, according to the authors, is its ability to withstand the action of caustic solutions.

Fabric made from Zantrel staple fiber can be dyed by conventional methods to give shades in the complete color range. Finishing is also done with conventional equipment and methods. The fiber is said to show particular promise for improved wash-and-wear fabrics of all types.

Zantrel's resistance to stretching in both the wet and dry state gives it excellent dimensional stability and freedom from progressive shrinkage.

When Zantrel fabrics are treated with resin in the amount used for cotton, the treated fabrics give equal or better crease recovery than cotton or rayon to which twice as much resin has been applied, and in addition, Zantrel does not show the undesirable loss in breaking and tear strengths exhibited by resin-treated cottons, the authors state.

•

Dyeing Machines

Anon, *Dyer 122*, 291-2, Sept 17, 1959

Dyeing machines for cotton or rayon piece-goods have been subjected to many modifications, but in most cases the basic design of the machine has remained unchanged. Probably the greatest changes have taken place in pad dyeing.

Forty years ago the pad was used extensively for dyeing light shades with direct dyes for sleeve linings and similar end-uses. The introduction of ranges of vat and azoic dyes necessitated changes in the dyeing method; the fabric had different end-uses, deeper shades were required, and there were problems of shade matching. Various ranges were introduced, mostly based on conventional pad mangles located in front of open soaping machines.

The Williams unit was a major step

forward, but the metal bath, in the opinion of the author, was probably the outstanding achievement with respect to novelty of approach combined with successful results. Many millions of yards have been processed through metal baths in various parts of the world, but a large proportion of this fabric was made from cotton and only a relatively small amount contained rayon or the synthetic fibers. The pad-roll machine has probably been used more extensively, particularly for fabrics made from viscose staple fiber.

The pad-roll machine, a Swedish development, consists of a steam-jacketed pad trough with a displacement chamber similar to that used in the Williams unit. The trough is deep but has a capacity of only 3½ gallons. The dye liquor is contained in two storage tanks with temperature control.

After padding, the cloth passes continuously into a zone heated by infrared quartz tubes, where it is heated to the desired dyeing temperature. It is then run into an insulated chamber, heated electrically, and is wound on a large-diameter batch roll, which is kept in constant rotation for a sufficient time, after padding is completed, to permit uniform diffusion and fixation of the dye in the material. The cloth is then removed for rinsing and aftertreatment.

The author also refers briefly to other dyeing machines which are finding increasing use: the Pegg in England, the ILMA in Italy, and the Burlington in the United States.

●

Fast Dyeings on Wool/Cellulosic Unions

Lemin, D R and Collins, J K, *J Soc Dyers Col 75*, 421-9, Aug, 1959

In recent years, increasing interest in wool/cellulose unions has, in some cases, called upon the dyer to produce the same standards o ffastness as are obtainable on the fibers when dyed separately. It has been found that, by careful selection of dyes and dyeing methods, it is possible to apply a variety of fast dyes to these unions without causing significant fiber damage.

The most commonly used method of dyeing wool/cotton unions is to employ either direct dyes possessing union-dyeing properties or a suitable mixture of acid and direct dyes. This method, while relatively simple, cannot produce dyeings possessing the highest wetfastness properties; the dyeings also lack brightness. The purpose of this paper is to describe recent laboratory work on the production of faster dyeings.

For the cellulose component, the following classes of dyes possess adequate wet-fastness: sulfur, reactive, Alcian, vat, and azoic. Sulfur dyes must be eliminated because of severe damage to the wool fiber.

One of the first considerations facing the dyer is the condition of the material after dyeing. Tests were carried out on wool/cotton union yarn in blank dyebaths to simulate the conditions present in azoic, vat, Alcian and Procion dyeing, where alkalis are used in the process. A table is included, giving the extension and breaking strength of the yarn after these treatments. It is pointed out that in no case is there any significant effect on the yarn properties.

The authors then turn to the practical problems associated with the application of these four groups of cellulose dyes to wool/cellulose unions. Carefully selected dyes were used, and the dyeing processes employed are described in great detail.

It was found possible to select a number of azoic combinations which give good solidity on 50:50 wool/cotton unions. With the other classes of dyes (vat, fiber-reactive and Alcian), it was necessary to bring the wool to shade later by the use of selected acid dyes.

While the dyeing methods employed in this work are more complicated than those normally used in union dyeing, they are nevertheless practical, the authors state, provided that suitable dyeing equipment is available.

Industrial Gums: Polysaccharides and Their Derivatives

Editors: Roy L Whistler and James N Be Miller
Academic Press; New York and London
$25.00; pp 766; 1959

The editors of this exhaustive work, Roy L Whistler and James N Be Miller, members of the Biochemistry Department of Purdue University, have obtained the assistance of thirty experts in the field to write a book that is an up-to-date and detailed reference work devoted to practical, integrated accounts of carbohydrate gums, their economics, processing methods, and applications. The book is a result of numerous requests from industry for practical information on industrial gums, prepared in such a way that it would be useful to research workers, chemical engineers, technical sales personnel as well as legal staffs. The book is well illustrated and the references at the end of each paper are exceptionally extensive. The book also has a useful 25- page subject index that is detailed.

For the individual who is working with industrial gums, this work should prove to be an invaluable reference.———RJK

●

Rheology of Disperse Systems

Edited by C C Mill
Pergamon Press; New York, London, Paris, Los Angeles
$9.50; pp 223

"Rheology of Disperse Systems" contains the proceedings of a conference sponsored by the British Society of Rheology held at the University College of Swansea in September, 1957. These previously unpublished papers on the latest theoretical and experimental work in this field are divisible into two groups. "In one, the dispersions studied were dilute or composed of non-interacting particles and experiments were designed to test hydrodynamic theory. In the other group, concentrated suspensions as used industrially, mainly in various forms of surface coating, were studied with the object of relating performance to rheological properties."

The opening paper presented by Professor V G Old Royd is conversational in tone and gives an excellent introduction to "Complicated Rheological Properties". This high level of performance is maintained throughout the book. The book is exceptionally well illustrated, including numerous photographs. Each paper has an appended set of references, some of which are dated as late as 1958. Each paper is followed by a verbatim account in dialogue form of the discussion that followed the presentation of the paper at the meeting. Of particular interest to the readers of this journal are two papers on pigment-oil and pigment plasticizer dispersions, as well as the fine introductory papers of the book. Unfortunately, the book contains no subject index.———RJK

News of the Trade

BAMA Adopts "Wash-and-Wear" Standards

United States Testing Co, as the official testing laboratory of the Boys' Apparel and Accessories Manufacturers Association, Inc, has set up a BAMA "Wash-and-Wear" Laboratory to verify that materials and fabrics purchased by BAMA members meet the standards adopted by the Association.

Under BAMA's program, the names of participating suppliers and the "wash-and-wear" ratings of qualified fabrics will be made available to BAMA members for their guidance in making their purchases. The initial list of participating suppliers is now being prepared.

BAMA's "wash-and-wear" program is the boys' wear industry's answer to the need for clearly defined standards. It is designed to help clear up the confusion of "wash-and-wear", which is threatening the loss of consumer confidence, while benefiting manufacturer and supplier alike by bringing stability to "wash-and-wear."

The new U S Testing Co standards are contained in a booklet, "The BAMA Wash and Wear Standards Program for the Purchasing of Wash and Wear Fabrics and Trimmings". In this booklet these questions are advanced:

Why is this standard program necessary for the boyswear industry?

How should BAMA members apply this program?

How can BAMA members know which suppliers are cooperating with the BAMA program?

What advantages are there for manufacturers and suppliers having all materials qualified by United States Testing Company under BAMA's program?

The answers are contained in the booklet available from U S Testing Company, 1415 Park Avenue, Hoboken, NJ, and Boys' Apparel and Accessories Manufacturers Association, Inc, 303 Fifth Ave, New York, NY.

The US Testing Co standards are based on specifications and test methods of American Standards Association, Committee L22 and the American Association of Textile Chemists and Colorists. The specifications and test methods covered include breaking strength, bursting strength, tongue tear strength, maximum dimensional change both directions, colorfastness to light, laundering and crocking, degree of wrinkling, chlorine retention, shrinkage, crease recovery and odor.

Under the BAMA Plan, U S Testing Co will classify all materials submitted by suppliers as:

a) Never needs ironing.
b) Little or no ironing required.
c) Minimum care—light ironing required.

BAMA, based on U S Testing Co classification, will make available a list of suppliers and materials that qualify under the plan, plus "wash-and-wear" ratings (a, b, or c) for each type or style of material, trimming, lining, etc.

The approved standards and specifications are based on end use.

•

Plans Set for Fiber Society's Spring Meeting

The spring meeting of The Fiber Society will be held at the Roosevelt Hotel in New Orleans on March 10 and 11. Technical papers presented will cover new developments in the knowledge of fiber properties and their behavior in end uses.

More than one hundred members and guests are expected to attend, according to Fiber Society President Ernest R Kaswell, Fabric Research Laboratories, Dedham, Mass.

Chairman of local arrangements for the meeting is James N Grant, Southern Utilization Research and Development Division, U S Department of Agriculture, New Orleans. Chairman of the technical program is Charles H Plummer, Chicopee Mfg Co, Milltown, NJ.

The Fiber Society is a nonprofit organization, established in 1941 to advance scientific knowledge of fibers, fiber products and fiberous materials. Its members are principally chemists, physicists and technologists in fiber research.

•

Weber, Permut Form Consulting Firm

Announcement of their association for the establishment of a consulting firm has been made by Ira Weber and Aaron Permut. Specializing in printinks, gravure & flexographic inks and protective & decorative coatings, the new company reportedly will maintain complete laboratory facilities, and be known as Weber and Permut, Inc, 35 Water Street, New York 4, NY. It will offer services to printing ink and coating materials manufacturers and to suppliers of raw materials for those industries.

Mr Weber has been associated with the printing ink and protective coating industries for the past twenty years as a production and research chemist. He will continue his present association with the Strawberry Hill Press where he supervises the gravure ink department.

Mr Permut has been consulting in the fields of organic pigments, flushed colors and pigment dispersions since 1953. He is also director of Solitone Laboratories, an international licensing organization in the textile printing field.

•

New Patent Firm Offers Unique Service

Industrial Patent Research Co, Columbus, Ohio, is now offering a unique service especially tailored for management and research and development staffs of chemical and related firms. The service entails the reduction of technical patents to easily understood digests of basic principles. These short summaries of patents, free from legal terminology and redundant detail, can be scanned and understood in a few minutes by scientific personnel, it is claimed. Thus personnel are kept apprised of new developments revealed in patents, obtaining maximum useful information in minimum time.

It is stated that clients of this service can assimilate 50 to 100 or more patents a week in less time than is required to review a single lengthy patent, when provided with these concise patent analyses.

Patents to be analyzed are provided by the client to IPR, which then prepares the analyses in accordance with an agreement established between the two companies. These extract-abstracts are then distributed to designated personnel of the client company. The latter are kept informed of significant developments, past and present, in their fields of interest.

A more complete description of the services offered by IPR, examples of patent analyses in typical fields of interest, and further information are available from Philip E Corbett, director, Industrial Patent Research Co, 2266 E Main St, Columbus 9, Ohio.

New Wool/Zefran Blend Dyeing Developments

One-bath systems for union dyeing blends of Zefran and wool have been announced by The Dow Chemical Company's textile fibers department, Williamsburg, Va.

This new development reportedly makes possible union dyeing of woolen-type piece goods of Zefran and wool with temperatures, dyeing times and dyestuffs common to woolen dyehouses, featuring a broad spectrum of shades, with fastness properties comparable to similarly dyed 100% wool fabrics.

The relative ease with which these types of fabrics can be dyed is predicated on two key points: 1) that neutral premetalized colors in light shades exhibit preferential affinity for wool; and 2) that certain selected milling acid colors exhibit preferential affinity for wool.

By combining colors from these two classes the dyer is equipped with a "dual control" system, according to Dow's textile development group; therefore, he can readily make shading additions to either one or both fibers. These are said to be ideal conditions for union dyeing.

Where heavier shades are required, the same technique is employed using the same classes of dyestuffs. However, as the depth of shade increases with NPM colors on Zefran, the wool also dyes to a light shade. The wool is then brought to shade with milling acid colors.

Brighter shades which cannot be achieved with true NPM colors reportedly require the use of direct colors on Zefran. Colors generally used are those commonly referred to as "wool white" dyestuffs, which dye Zefran with minimum staining of the wool component. The wool is brought to shade with milling acid colors as above. This is comparable to techniques for dyeing wool/cellulosic blends where close control of dyeing conditions is required to achieve acceptable dyeings.

Listed below are typical procedures which illustrate this technique in the production of light, medium, and dark shades:

Light Shade—Beige 207502
Set Bath (pH 6.3-6.8)
1.0% Igepon T-33
5.0% ammonium sulfate
1.0% acetic acid
20.0% sodium sulfate
Run 10 minutes at 110°F
Add 0.050% CI Acid Brown 28
0.012% Lumicrease Yellow EFUL
0.052% CI Acid Brown 36
0.010% Polar Yellow 5GN Conc
0.002% CI Acid Violet 48
Raise to 210°F over 30 minutes
Run at 210°F for 60 minutes
Rinse

Olive Green
2.50% Capracyl Green 2Y
0.10% CI Acid Orange 88
0.50% Supralan Olive Green BA
0.75% Irganol Brill Green 3GL
0.01% CI Acid Red 145
0.01% CI Acid Orange 7

Dark Brown
2.12% Supralan Olive Green BA
1.44% CI Acid Red 211
0.72% CI Acid Yellow 116
0.47% CI Acid Blue 143
0.075% CI Acid Red 145
0.075% CI Acid Yellow 110 conc

Salmon 056010 Z/W
0.25% CI Acid Red 209
0.13% CI Acid Red 145

Red 054016 Z/W
1.25% CI Direct Red 34
2.25% CI Direct Yellow 50
0.15% CI Acid Red 52

Heavy Shade—Black 11000
Set bath (pH 6.5-7.5)
1.0% Igepon T-33
5.0% ammonium sulfate
20.0% sodium sulfate
Run 10 minutes at 110°F
Add 7.0% CI Acid Black 29
4.0% Cibalan Black BGL
Raise to 210°F over 30 minutes
Run at 210°F for 30 minutes
Add 40.0% sodium sulfate
Run at 210°F for 30 minutes
Rinse

●

Brunt Faultfinder

Brunt Faultfinder

To meet the special requirements of the textile industry, the Brunt Faultfinder, which is offered by the Parr Manufacturing Corp, 44 Austin St, Newark NJ, for the detection of accidental grounds, has been streamlined for easier handling, more efficient use. Lightened, the new model reportedly weighs 33 1/3% less than the former one. This new model is said to be in direct application at such plants as Burlington Mills, E I du Pont de Nemours & Co, Inc, West Point Manufacturing Co, Coats & Clark, Cone Mills, Firestone Textiles, American Bemberg, North American Rayon Corp, and the American Viscose Corp. As part of the new design, double earphones, covered with foam rubber, are now included as standard equipment.

Through the use of new, lightweight materials, the weight of the Faultfinder has been lowered from 27 pounds to 18 pounds. The new earphones, previously offered only as optional equipment, are said to assure increased comfort and a louder, clearer signal.

The Brunt Faultfinder, a combination ground detector and fault locator, locates accidental grounds on power systems, both AC and DC, up to 600 volts, while the system is energized. Imposing only two amperes on the circuit, it reportedly cannot damage equipment on the line.

In using the Brunt Faultfinder, it is said to be unnecessary to shut down power. The Faultfinder, which can be operated by one man, is convenient in tracing pole line signals without the necessity for climbing, and in locating underground cables and pipes.

●

New Cotton Hosiery Bleaching Process

Development of a rapid bleaching process for cotton hosiery that is said to offer substantial economies in bleaching costs and greater speed of operation has been announced by Columbia-Southern Chemical Corporation's market research and development department.

Hydrogen peroxide and other additives combined with the novel use of existing rotary-type hosiery dye machinery produces excellent quality and high whiteness, greater ease of handling materials, and eliminates the possibility of yellowing due to chlorine retention, according to the company.

Columbia-Southern officials report that performance to date of the new bleaching technique confirms the economic advantage achieved with the greater throughput and lower costs due to simplicity and speed of operation. The rapid bleaching process was developed in Columbia-Southern's textile laboratory at Barberton, O, while the pilot-plant development was completed in the School of Textiles at Clemson College, Clemson, SC.

Additional information on the process can be obtained by writing Columbia Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pa.

New Du Pont Patent Covers Application of Aqueous Vats Without Reducing Agent

Application of aqueous vat dyes without a reducing agent, to provide "sharper more intense colors than can be obtained economically by other methods of textile printing," is covered in a United States patent issued recently and assigned to the Du Pont Company.

The new process apparently differs from current printing methods in that vat dye pastes are incorporated in a water-in-oil emulsion that permits printing without immediate development. Certain features of the Du Pont pad-system continuous dyeing process are employed for the color development. The new technique is said to offer higher textile printing speeds than are usually attained with the conventional vat-dye-printing process.

A wide variety of specially developed colors are available for use with the process, the company announced. They are said to be easily emulsified, to exhibit good application properties, to be easily removable from equipment after a run, and to be so stable they can be used weeks after preparation without fear of deterioration. In many cases, the apparent strength of the prints obtained is double that obtained by printing the same color by conventional means, it is claimed.

Conventional printing equipment is used in applying the vat dye emulsion. After drying, the prints are developed by impregnation with reducing agents and alkali. Then they are steamed in a flash ager, oxidized, and soaped lightly. One of the big advantages is said to be that the printed fabric, after drying, can be stored indefinitely and developed later, with no loss of color.

•

Hunter Cascade Washer Said to be Effecting Major Savings

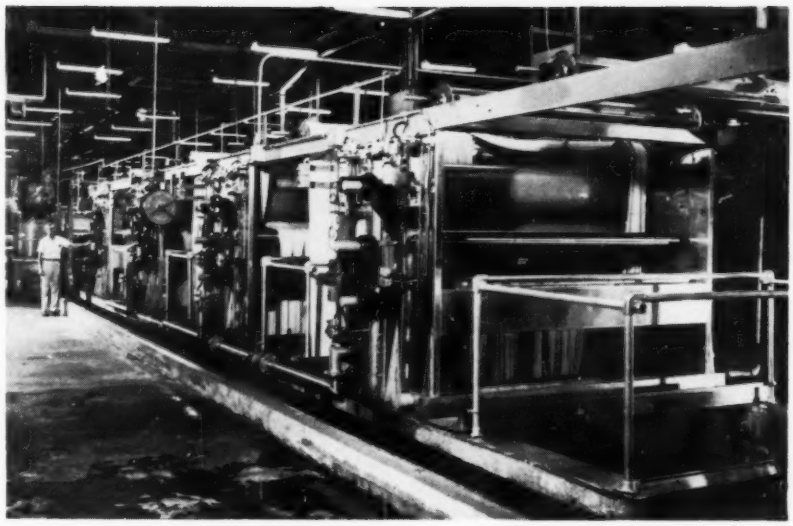
The economies which James Hunter Machine Co's patented cascade washer reportedly makes possible for woolen and worsted finishers is said to have resulted in wide general interest in the cascade washing system. It is reported that, in one recent month, three large Southern finishing plants installed 8-bowl washers. A fourth has ordered an 11-bowl washer; and one of the first installations has ordered a conversion of its old-style Hunter continuous washer to a second cascade washer.

The success of this new Hunter unit is said to be based on the savings it effects in water, steam and labor costs —sufficient, according to the manufacturer, generally to pay for the complete installation within two years. For example, it is said to use only a small fraction of the 50 gallons of water required to wash a pound of cloth with the old-style batch dolly washer still in use by many finishers. On synthetic blanket materials, the Hunter cascade reportedly has kept water consumption as low as 1.5 gallons per pound. In addition to this, there is a considerable saving in steam required to maintain temperature at 110°F.

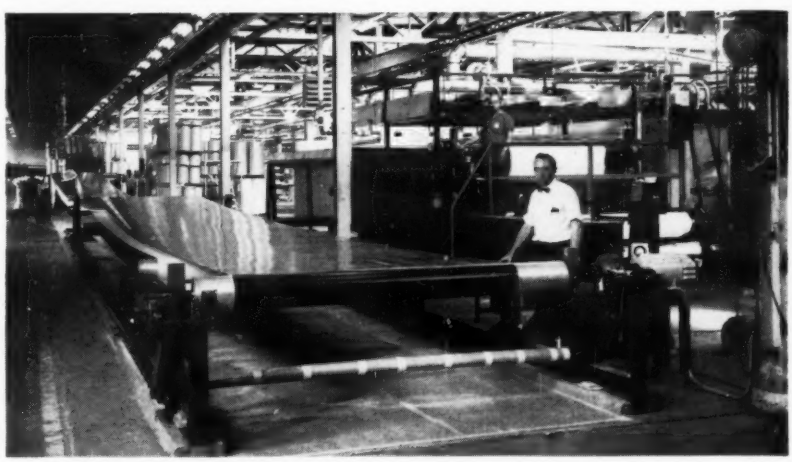
The Hunter cascade washer usually is set in range with scutcher, squeeze rolls and plaiter, and the entire range can be operated by two men.

The cascade system also is said to have several points in its favor over the old-style continuous cloth washing system. The original investment is smaller, and the proximity of the bowls to each other reportedly permits a much more efficient counter-flow system.

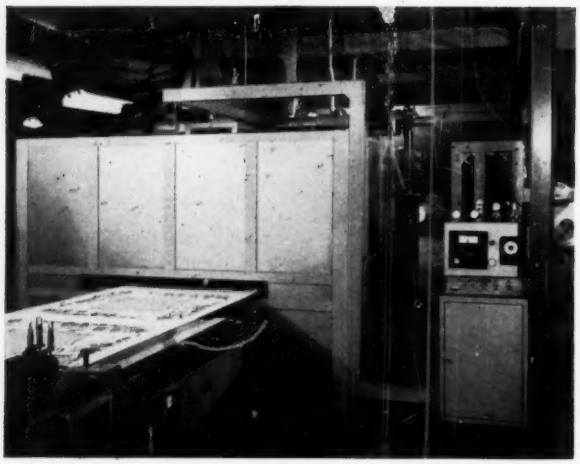
According to James Hunter Machine Co, finishers using the Hunter continuous washer can effect considerable savings in converting to the patented Hunter cascade washer by using rubber squeeze rolls, squeeze roll levers and stainless-steel whip rolls from the old installation on the new unit.

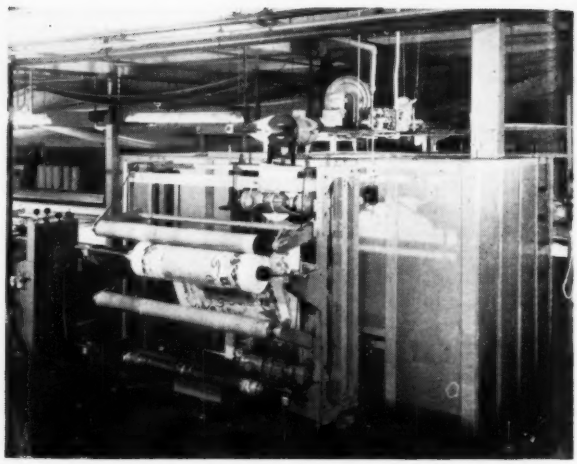


Hunter cascade washer installed at Excelsior Finishing Co, Pendleton, SC



A textile print blanket 104 yards long and 76 inches wide, more than double the normal size, and believed to be the largest ever made, is inspected at the Adams, Mass, plant of the Dewey and Almy Chemical Div, W R Grace & Co. The Darex print blanket will be used on a 16-color automatic screen printing machine, said to be the largest ever built. The machine, designed by the Thorne-Brown Co, Westport, Conn, has been installed in the print works of Mead & Montague Inc's Printed Fabrics Corp at Carrollton, Ga. Initial production runs on the machine have begun.





Entering end (left) and delivery end (right) of Adams/Zeller gas-fired screen printer drier-curer at Castle Creek Print Works, Washington, NJ

A/Z Gas-fired Screen Printer Dryer-Curer Operating at Castle Creek

A new gas-fired drying and curing machine for screen-printed fabrics, developed by Adams/Zeller Corp, Glenside, Pa, is now operating in a continuous automatic screen-printing range at Castle Creek Print Works, Washington, NJ.

Since 1954, Castle Creek has installed four automatic screen-printing ranges. The lastest, which went into operation in May, uses the Adams/Zeller gas-fired curing unit. It is more flexible than steam curing, and provides accurate control of temperature, according to Frank J Percarpio, president of Castle Creek.

A patented pneumatic advance is a feature of the Adams/Zeller machine. As the printing machine stops and starts, advancing the cloth at a rate of 44 inches per second, the Adams/Zeller machine reportedly assures proper drying and curing with an intricate, automatic valving system, dual pressure controller, and an electronic timer.

In the drying zone, with a holding capacity of 10 yards, controlled high-velocity air impinges on the fabric. Lower velocity, evenly distributed air passes over the cloth in the curing zone, which has a holding capacity of 44 yards.

The gas-burning heating system reportedly develops up to one million BTU providing for temperatures up to 500° F. All rolls are Teflon-coated to minimize heat transfer to the fabric in the stop during the printing cycle.

The centrifugal-type fans are designed and fabricated for high-static-pressure operation. They are driven by 10 hp motors through variable-speed pulleys, thus providing a wide velocity range for drying and curing light or heavy fabrics.

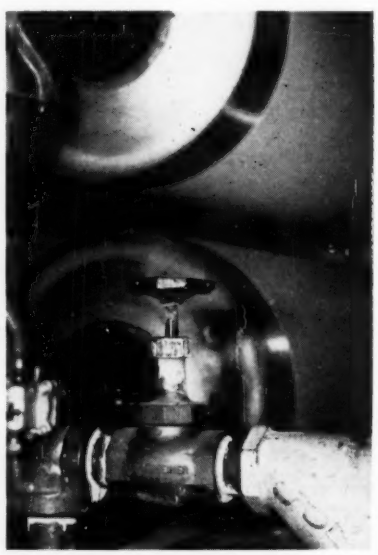
Production on the new automatic screen-printing range at Castle Creek is reported to be 1,000 yards per hour, with cloth widths up to 80 inches. Castle Creek production is principally drapery fabrics and table cloths.

A M Zeller, president of Adams/Zeller Corp, reports that a second drying and curing unit is in operation at Colonial Print Works, Paterson, NJ. A third installation is under contract.

•

Cluett, Peabody Reports Trouble-free Service from LQ600 Globe Valves

Cluett, Peabody & Co, Inc, manufacturer of the Arrow line of fabrics, reports "trouble-free" service from Lunkenheimer LQ600 bronze globe valves installed on steam and hot-water lines in various parts of its Troy, NY, plant over three years ago. Previously, Cluett, Peabody's Arrow Bleachery at Waterford, NY, also reported excellent performance from the LQ600 Valves. At both plants, LQ600 Valves were installed in the same throttling service where, it is claimed, former valves had to be serviced or replaced because of wiredrawing of seats within a few months.



LQ bronze globe valve on steam line to dry cans at Waterford, NY, plant of Cluett, Peabody & Co

Wiredrawing is caused by the tornado-like force of steam on the valve seat and disc. It produces minute channels that permit the escape of steam even with the valve closed tight. Once wiredrawing starts, it deteriorates the valve seat and disc rapidly, and the valve must be taken off the line and repaired.

The performance of LQ600 Valves, manufactured by the Lunkenheimer Co, Cincinnati, Ohio, reportedly is made possible by a combination of two new elements in valve design.

The first is a new seating metal, patented under the name "Brinalloy". This new alloy is said to be hardened all the way through, making it far more resistant to wear and corrosion than 500 Brinell Stainless Steel, and actually outlasts case-hardened stainless steel, exceeding 1000 Brinell.

The second element is the flat-seat design of the valve. This is said to be made possible by the exceptional hardness and resistance to wear of Brinalloy. Brinalloy seats and discs reportedly are lapped to obtain microoptically smooth flat seals, which are integral parts of the disc and body.

Tanalid Process

Tanatex Chemical Corp, Kearny, NJ, has revealed details of a new process for printing of polyester fabrics with disperse dyes. The new method will be known as the Tanalid Process.

Extreme fastness to washing, drycleaning and crocking and elimination of steaming together with faster continuous printing of premium quality fabrics, are some of the advantages cited for the new technique. Peter J Scott, Tanatex president, was quoted as saying: "It is to be expected that introduction of the Tanalid Process will mark a shift to greater use of polyesters in printed fabrics, in view of their inherent 'wash-and-wear' properties."

Heart of the Tanalid Process is a new Tanatex product, Tanalid Clear, described as a "dye-weld". In explaining the necessity for the new term, Mr Scott said: "The chemical action of Tanalid Clear is totally unlike that of the usual carrier—therefore we had to find a new descriptive word for it." The necessary technique is said to be simple and quick and to use conventional disperse dyes and printing, drying and soaping equipment.

A wide range of both low-priced and premium disperse dyes is reported suitable for the Tanalid Process. Shades from pastels to navies and blacks are said to be readily achieved.

The process consists of preparation of a paste containing Tanalid Clear, disperse dye and thickener; printing this paste onto suitably prepared goods, immediate drying by conventional means, and fixation of the print by drying at 300°F followed by soaping, washing and drying.

It is claimed that polyesters printed by the Tanalid Process have all the qualities to be expected of goods printed with dyestuffs as opposed to pigment prints. The fabrics reportedly have a softness of hand and clearness of color not obtainable with pigments. In addition, it is stated that production is increased because steaming is eliminated. Tanatex claims that continuous, top-quality printing by the Tanalid Process is actually more rapid on polyestsers than conventional printing on other synthetics, and even natural-fiber fabrics.

Patents have been applied for both the Tanalid Process and Tanalid Clear. Licenses to use both for evaluation purposes are readily available. Complete details may be obtained by writing Tanatex Chemical Corp, Belleville Turnpike, Kearny, NJ.

•

Improved Dow Caustic Low in Iron Content

Availability of an improved caustic product low in iron content and packaged in fiber drums designed to cut freight and handling costs and provide safeguards against product contamination has been announced by The Dow Chemical Company.

Dow said the new process caustic is low in iron content with improved flow characteristics and will be produced using a process which permits greater control of product quality.

The process is described as "a continuous process contrasted with the old batch process."

Dow also called the new containers a "notable achievement in package design" and stressed that "protection of product purity by eliminating dangers of product contamination from iron, rust, or paint is as important in this design as the advantages it offers in terms of freight and handling economies."

The containers were described as "full-open head type lined with polyethylene-coated aluminum and liquid-tight bottom construction." Substantial savings in costs of shipping and handling and guaranteed availability" were among the advantages cited.

Dow said the containers could be stacked without dunnage and had salvage value.

Sodium orthosilicate also will be available in the fiber containers. First shipments of products in the new containers was scheduled for early December from Dow production plants at Midland, Mich and Freeport, Texas.

New Process for Belfast Fabrics

A new process to build maximum dry-crease recovery into Belfast fabrics was announced recently by Deering Milliken Research Corp.

George Cocoros, head of the Belfast division said the new process involves an entirely different approach to basic molecular modification of cotton fiber plus the limited use of resins.

"The big difference," he asserted, "is that we have been able to get the maximum dry crease resistance from the resins and at the same time eliminate the harsh feeling which accompanies resin-coated fabric."

As a result of the new process, Belfast fabrics are said to be "self-ironing" when tumble dried as well as when line dried. The smooth hand which has distinguished Belfast fabrics reportedly has been improved by the new process, which also is said to provide greatly increased tensile and tear strength for the fabrics in a wet and dry state.

Mr Cocoros said all properties of Belfast fabrics are permanent.

Finishing plants licensed to produce Belfast fabrics are expected to utilize the new process immediately for commercial production, making fabrics available for spring 1960 apparel lines.

Belfast fabrics produced by the new process have undergone extensive laboratory tests, Mr Cocoros said.

"Test results demonstrate that fabrics produced by the new process can achieve the maximum flat dry rating, using the Monsanto three- dimensional wash-and-wear standards, after line drying or tumble drying," Mr Cocoros declared .

"We can say without qualification that in the new Belfast fabric we have achieved a fabric which can be washed by any conventional method, from which water can be extracted by any conventional method, which can be dried by any conventional method, and which will dry smooth and wrinkle free."

The process is performed after fabric is woven.

General Calendar

AMERICAN ASSOCIATION FOR TEXTILE TECHNOLOGY
Jan 6, Feb 3, Mar 2, Apr 6, May 4, June 1 (Della Robbia Room, Hotel Vanderbilt, New York, NY)

AMERICAN COTTON MANUFACTURERS INSTITUTE
April 7-9 (11th Annual Meeting, Americana Hotel, Bal Harbour, Miami Beach, Fla); Mar 23-25 (12th Annual Meeting, Fontainebleau Hotel, Miami Beach, Fla)

AMERICAN SOCIETY FOR QUALITY CONTROL, TEXTILE DIVISION
Feb 18-19 (10th Annual Conference, Clemson House, Clemson, SC)

AMERICAN TEXTILE MACHINERY ASSOCIATION
May 23-27, 1960 (American Textile Machinery Exhibition, Auditorium, Atlantic City, NJ)

FEDERATION OF BRITISH INDUSTRIES
June 10-26 (British Exhibition of Industry, Technology, Science and Culture —Coliseum, New York, NY)

INTER-SOCIETY COLOR COUNCIL
April 11-12, 1960 (29th Annual Meeting—Philadelphia Museum College of Art, Philadelphia, Pa)

NATIONAL COTTON COUNCIL
Feb 8-9 (Annual Convention, Dallas, Texas); Sept 28-29 (9th Chemical Finishing Conference, Statler Hotel, Washington, DC)

PHI PSI FRATERNITY
April 28-30 (57th Annual Convention, Hotel Roosevelt, New York, NY)

SOUTHERN TEXTILE EXPOSITION
Oct 3-7, 1960 (Greenville, SC)

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, DELAWARE VALLEY SECTION
Mar 26 (3rd Philadelphia Conference of the Graphic Arts Industry—Benjamin Franklin Hotel, Philadelphia, Pa)

TEXTILE RESEARCH INSTITUTE
March 24-25, 1960 (30th Annual Meeting, Hotel Commodore, New York, NY)

• NAMES IN THE NEWS •

Soderberg

Meinert

Farr

Smith

Announcement has been made that *Frederic A Soderberg*, vice president of F C Huyck & Sons, has been appointed general manager of the Huyck Felt Company Division.

Mr Soderberg, prior to his new position, served as vice president—marketing.

As general manager, Mr Soderberg succeeds *Roderick T Clarke*, vice president and secretary of F C Huyck & Sons, who has been reassigned to duties on the Company's corporate staff.

•

General Aniline & Film Corp has announced three major personnel moves as follows:

Carl A Bergman has been appointed to the new position of chemical sales manager—Southern Region for General Dyestuff Co, a GAF sales division. In his new capacity, Mr Bergman will direct and coordinate chemical sales in the Charlotte and Chattanooga branches of the company, under *C C Cayce*, Southern Regional manager. Mr Bergman was formerly assistant branch manager of Antara Chemicals, another GAF sales division.

Joseph H Wilkinson Jr has been appointed director of development of GAF's newly created Corporate Development Department, which has been established to assist the Corporation's Management Committee and the president, *Philip M Dinkins*, in the operations of the Company. Dr Wilkinson, who will make his headquarters at 435 Hudson St, New York, moves from Easton, Pa, where he had been new fields research manager for the Company's Dyestuff & Chemical Division and manager of the Central Research Laboratories.

Succeeding Dr Wilkinson as manager, new fields research at the Central Research Labs in Easton is *Charles F Jelinek*, who had been manager of the Process Research and Development Department at the Rensselaer, NY, plant of the Dyestuff & Chemical Division.

Aylesworth

Dhonau

Reorganization of the Development and Service Department of Emery Industries, Inc, has seen the establishment of three major sections: an Applications Section (formerly attached to the Research Department), a Product Development Section, and a Technical Service Section. These groups will all report to *Walter T Meinert*, who has resumed the position of director of development and service after a temporary assignment on a special market development project.

John D Farr, who served as acting director of development and service during Mr Meinert's temporary assignment, has been appointed manager of the Product Development Section. *Robert D Aylesworth* remains manager of the Applications Research Section, a position which he held while the section was part of the Research Department. The Technical Service Section will be staffed at present by *Robert H Dhonau*, who will coordinate all technical service activities for Emery's line of fatty acids, and Mr Farr, who will coordinate the balance of the company's organic chemicals. Mr Dhonau has been with the Department since 1956.

•

J Peter Kass has joined Armour and Co as director of the Central Research Laboratories, a newly created position.

Before joining Armour, Dr Kass was director of research for Pabst Brewing Company.

Howard N Smith has joined the staff of the United States Testing Company, Inc, Hoboken, NJ, where he will supervise a number of basic fiber quality-control programs. Mr Smith has had wide experience as a designer, stylist and laboratory director in the textile industry.

•

Appointment of *John W Priesing* as manager of the newly established West Coast Sales Branch of Solvay Process Div, Allied Chemical Corp was announced recently. The Solvay branch will be located at Allied Chemical's consolidated sales office, 235 Montgomery St, San Francisco, Calif.

Mr Priesing became the division's West Coast sales representative last year.

•

Appointment of *Carl Smith as* assistant general manager of the Michigan Alkali Division of Wyandotte Chemicals Corp has been announced.

Smith, who joined Wyandotte early in 1958 as executive assistant to *Bert Cremers*, a vice president of Wyandotte and general manager of the Division, will coordinate the Division's sales distribution and marketing research activities with those of research, product development and manufacturing.

•

Quaker Chemical Products Corp, Conshohocken, Pa, has promoted *Robert Stewart* to manager of its Textile Division.

Succeeding Mr Stewart as field process engineer in the Mid-West is *Fred P Zirm Jr*, who will operate in Ohio and Michigan. Mr Zirm, who was formerly with DuPont, will handle specialty chemical products for textile and paper processing mills.

•

William F Crowell Jr, formerly with Moreland Chemical Co, has joined Chemical Services, Inc, Atlanta, Ga, in the capacity of vice president.

Andrew J Kelly, chief chemist and a member of the board of directors, Burkart-Schier Chemical Co, was presented the Distinguished Service Award of the Chattanooga Section, American Chemical Society, at a dinner held last month at the Signal Mountain Country Club, Chattanooga, Tenn. The presentation of the Award and citation was made by Emerson Poste, recipient of the Award last year.

Letters of congratulation and commendation from the following were read: *George D Grice,* president, College of Charleston, Mr Kelly's alma mater; *Msgr George J Flanigan,* Sts Peter and Paul's Church; *C W Gilchrist,* president, and *Peter S Gilchrist Jr,* secretary-treasurer, Charlotte Chemical Laboratories, Inc; *P J Wood,* AATCC past president; *Charles A Schier,* president, Burkart-Schier Chemical Co; *Alden H Emery,* executive secretary, ACS; *E V Helms,* chairman, South Central Section, AATCC; and *Iley M Barnes Jr,* president, Chattanooga Engineers Club.

Andrew J Kelly, right, receives Distinguished Service Award of the Chattanooga Section, ACS, from last year's Award winner, Emerson Poste

Mr Kelly is a past chairman of the South Central Section, AATCC; past chairman fo the Chattanooga Section, ACS; and past president of the Chattanooga Engineers Club.

TECHNICAL LITERATURE

Literature is available from sources listed in italics

A GUIDE TO MORE EFFICIENT CLEANING IN THE TEXTILE INDUSTRY—*Oakite Products, Inc, 154A Rector St, New York 6, NY*—Eight-page booklet, which is illustrated by photographs of cleaning operations, discusses plant-proved procedures for cleaning looms with solvent detergents applied through spray equipment; cleaning and derusting reeds; hot tank cleaning of loom and machine heads; steam cleaning of dye kettles and acidic treatment of dye boxes; removal of heavy deposits from tenter chains and slasher drums; cleaning synthetic-fiber-processing equipment; and regular maintenance of floors of every type. The important operation of maintaining air conditioning equipment is discussed and materials recommended for the control of algae and slime.

•

CELLOSIZE HYDROXYETHYL CELLULOSE—*Union Carbide Chemicals Co, 30 East 42nd St, New York 17, NY*—16-page booklet contains extensive data on properties, preparation of solutions, film and coating properties, preparation of water-insoluble films, applications, toxicological properties, specification limits, shipping data, and test methods.

Cellosize hydroxyethyl cellulose is a nonionic synthetic colloid that is said to be readily soluble in hot or cold water. It reportedly has excellent tolerance for dissolved electrolytes. It can be used as a thickener, binder, stabilizer, protective colloid, film-former, or coating in textile testing, detergents, and numerous other applications.

•

DUESSELDORF PLASTICS EXHIBITION CATALOGUE — *Nordwestdeutsche Ausstellungs - Gesellschaft mbH, Ehrenhof 4, Duesseldorf, Germany*—Reprints of the Plastics 1959 Exhibition catalogue, stocks of which were temporarily exhausted owing to extraordinary strong demand, are now available. The new 400-page catalogue contains a reprint of the alphabetical list of exhibitors, an index to classifications, and a list of exhibitors.

•

PFIZER PRODUCTS FOR CHEMICAL CLEANING— *Chas Pfizer & Co, Inc, 630 Flushing Ave, Brooklyn 6, NY*—Contents of this brochure include: Introduction, Power Plant Cleaning, Stainless Steel Cleaning, Cleaning Aluminum Metal and Aluminum Alloys, Alkaline Derusting and Paint Stripping, Cleaning Cast-Iron-Glass Forming Molds, Bottle Washing, General Chemical Cleaning, Packaging, and References. Also included is an Appendix offering the following: Assay Procedures for Dissolved Ferrous and Ferric Iron, Estimate of "Free" Citric Acid for Chemical Cleaning of Ferrous Metals, Preparation of Ammonium Citrate Dibasic, Preparation of Ammoniated Citric Acid of Various pH, and Corrosion Rates. A list of allied literature from Pfizer is also included, together with a list of Pfizer Chemical Sales Division offices.

•

SOLANTHRENE BEIGE N PASTE OPTIMA—*Francolor Inc, Woonsocket, RI*—Technical Leaflet No. 234-E presents uses, an application method for direct printing, print paste and reduction thickening formulas, principal characteristics, fastness properties, and sample dyeings for this vat color, which is recommended by Francolor for printing on cotton and other vegetable fibers, particularly for printing on spun viscose, especially for large blotches in pale shades. It is claimed that very uniform shades are obtained with excellent fastness to light even in pale depths.

The product is printed in the normal manner recommended for vat colors. It is stated that, because of the product's fastness of dispersion, full color yield is obtained at strengths equal to or below 60 parts per thousand.

•

SOLANTHRENE BRILLIANT SCARLET N PASTE OPTIMA—*Francolor Inc, Woonsocket, RI*—Technical Leaflet 263-E presents uses, printing method, print paste and reduction thickening formulas, principal characteristics, fastness properties, and sample dyeings on cotton and spun viscose for this vat color, which is recommended by Francolor for printing of cotton as well as pastel shades of acetate rayon, using the normal printing method for vat colors. It is recommended particularly for

red and scarlet shades of outstanding brightness to hot pressing (no sublimation at 390°F). Another advantage cited is the maintenance of shade even under prolonged aging conditions.

SOLANTHRENE PRINTING BLACK 2J DOUBLE PASTE—*Francolor Inc, Woonsocket, RI*—Uses, a direct printing method, printing recipe, principle characteristics, fastness properties, and a sample dyeing are covered in Technical Leaflet 228-E. This color is another addition to Francolor's line of vat printing colors which they recommend for cotton and other natural regenerated vegetable fibers. It is printed by a normal formula for vat-color printing but calls for Rongeol C Extra Powder. Because of its economic possibilities, Francolor recommends it for the printing of blacks, both as outlines and blotches.

SOLANTHRENE PRINTING BLACK TL OPTIMA PASTE—*Francolor Inc, Woonsocket, RI*—Another new addition to Francolor's Solanthrene printing line is illustrated in the company's #35-FED shade card, "Solanthrene, Heliane, and Indigo Dyestuffs". This color is recommended by Francolor for the printing of cotton and other vegetable fibers when used in the normal manner, This color reportedly is used to obtain prints of excellent fastness to wash, chlorine and light, and is said to be particularly suitable for contour blacks.

●

STEROX 21-K FOR FULLING AND SCOURING OF WOOL AND WOOL-BLEND FABRICS—*Inorganic Chemicals Div, Monsanto Chemical Co, 800 North Lindbergh Blvd, St Louis 66, Mo*—Use of Sterox 21-K, Monsanto states, cuts total chemical and processing costs, reduces handling and storage problems and results in improved quality of goods.

Bulletin No. I-179 gives performance comparisons of Sterox 21-K with other methods of wool fulling and scouring, contains recommended use procedures and includes a description of the physical and chemical properties of the product.

●

SWIFT LINE OF SYNTHETIC SURFACE-ACTIVE AGENTS AND DETERGENTS FOR INDUSTRY—*Swift & Co, Soap Dept, Chicago 9,* Ill—24-page bulletin describes Swift's Solar line, which includes various forms of liquid concentrates for wetting, emulsification, suspension, dispersion, etc, and solid materials for use as detergents, wetting agents, emulsifiers, etc.

The bulletin gives chemical and application specifications for over ten materials.

●

TERGITOL SURFACTANTS—*Union Carbide Chemicals Co, 30 East 42nd St, New York 17, NY*—This 44-page booklet contains extensive data for eight nonionic and four anionic Tergitol surfactants, including selection, solubilities, properties, formulations, applications, performances, specifications and test methods, shipping, bulk storage, and physiological properties. A detailed bibliography and reference section is included.

Both types of surfactants are said to give rapid wetting and penetrating action, but under different conditions. The Tergitol nonionic surface-active agents are of the polyethylene glycol-ether type, while the Tergitol anionic surface-active agents are basically sodium salts.

●

TEXTILE CHEMICALS AVAILABLE FROM CARBIDE—*Union Carbide Chemicals Co, 30 East 42nd St, New York 17, NY*—This new 44-page booklet describes more than a hundred chemicals for the textile industry.

The booklet contains application, formulation, and physical property data for textile chemicals used in 41 textile-processing operations. Applications discussed in detail in the booklet are: adhesives for bonded fabrics; aftertreating agents for dyeing; anticreasing agent intermediates; antifoaming agents; antifume agents; antislip finishing agents; antistatic agents; bleaching assistants; carbonizing agents and assistants; conditioners; corrosion inhibitors; detergents and assistants; dispersing agents; dyeing assistants; emulsifying agents and assistants; fiber synthesis and modification agents: finishing agents; fumigants; kier-boiling assistants; lubricants, mercerizing assistants; mildew preventives, mordants; paint and tar removers; plasticizers for flexible sizes, coatings, and finishes; printing assistants; reducing agents; resin intermediates; resists; sequestrant intermediates; shrinkage control agents; sizing agents; softeners; scouring agents; stiffeners; stripping agents; thickeners; warp sizes; water repellents and ingredients; and wetting agents.

●

THERMOCOUPLES . . . ASSEMBLIES, PARTS AND ACCESSORIES—*Leeds & Northrup Co, 4934 Stenton Ave, Philadelphia 44, Pa*—Catalog EN-S2 lists and describes standard assemblies in protecting tubes and wells for general applications; specialized thermocouples and assemblies for laboratory and industrial applications; and an extensive line of bare and insulated thermocouple wires, replacement elements, ceramic insulators, metal and ceramic protecting tubes, wells, terminal heads and extension leadwires.

Recommendations are given on the choice and use of thermocouples and assemblies and on the limitations of protecting tube and well materials.

●

TURBO FS-60 FIBER SETTER—*Turbo Machine Co, Lansdale, Pa*—Illustrated bulletin describes Model FS-60 for setting synthetic fibers in baskets, in cans or in bobbin racks. Production is said to be 150 to 200 lbs/hr. It is said to be easily adapted for use in any process handling staple or tow.

TURBO FS-96 FIBER SETTER—*Turbo Machine Co, Lansdale, Pa*—This bulletin illustrates and describes the Turbo Model FS-96 for thermosetting modified filament sweaters, which handles nine to 13 dozen on trays for each processing cycle. Bulletin tells how alternating vacuum and steam cycles result in fast, uniform heat setting with no air or moisture pockets.

TURBO MODEL DC CRIMPER; TURBO MODEL W TOW CRIMPER—*Turbo Machine Co, Lansdale, Pa*—Illustrated bulletins describe machines for synthetic tow. Model DC Crimper is designed for low-stiffness, easily bent fibers. Model W Crimper is for more rugged service, including extremely heavy work on sliver.

●

USTC PRICE LIST—*Textile Division, United States Testing Co, Inc, 1415 Park Ave, Hoboken, NJ*—New price list covers U S Testing Co's services in the textile field. Some of the services included in this list are abrasion, aging, carpet, colorfastness and hosiery testing; fabric construction and performance; fiber indentification and composition, wash and wear and defect studies.

●

VYCRON POLYESTER FIBER—*Beaunit Mills, Inc, Fibers Div, 261 Fifth Ave, New York 16, NY*—Data sheets, covering specifications or the newest of America's polyester fibers, are available from Beaunit Mills, Inc, Fibers Div (formerly known as North American Rayon Corp).

The company's plant at Elizabethton, Tenn, has a projected annual capacity of 10,000,000 to 12,000,000 pounds. It is now producing Vycron in the form of staple fiber, tow, and direct spun yarns—as well as in filament yarn form.

emblies
appli-
of bare
wires,
insu-
tecting
nd ex-

on the
es and
ions of
ials.

TER—
, *Pa*—
Model
bers in
racks.
to 200
dapted
staple

TER—
, *Pa*—
scribes
hermo-
reaters,
zen on
. Bul-
vacuum
t, uni-
mois-

MPER;
IMPER
, *Pa*—
ma-
del DC
iffness,
rimper
cluding
er.

Divi-
o, Inc,
—New
g Co's
ome of
list are
astness
nstruc-
ndenti-
sh and

IBER—
iv, 261
—Data
or the
fibers,
lls, Inc,
s North

zabeth-
annual
,000,000
Vycron
w, and
as in

1959